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PHARMACODYNAMIC EFFECTS UPON THE GALLBLADDER*

BY ALEXANDER L. BASSIN, A.B.,† AND LESTER R. WHITAKER, M.D.†

THE study of the effects of drugs upon motor activity of the gallbladder has awaited the development of methods in which the state of the animal is unaltered by conditions of the experiment. Cholecystography was the first step in this direction; but since only variations in size and shape of the vesicle can be determined by this method, slight pressure changes, or the expulsion of a minute quantity of vesicular content cannot be noted. The iodized oil method, however, consisting in filling the gallbladder with iodized oil at laparotomy and allowing the animal to recover before the experiment, obviates this difficulty.[1, 3] Direct effects of certain drugs and other substances upon the resting gallbladder, and effects upon the activity of the viscus during digestion are studied in this paper. The only attempt at classification is the arrangement into two groups: (a) those which induce motor activity in the gallbladder, and (b) those which either fail to do this or check the normal expulsive action of the vesicle during digestion.

Direct smooth muscle stimulants have been shown previously to produce contraction in the musculature of the gallbladder in situ[2, 3], thus demonstrating a mechanism for emptying the viscus. In the present series, *barium chloride*, 1 to 2 cc. of 1% solution intravenously, produced contraction of the gallbladder in six cats, pronounced in some cases, slight in others, but momentary in all (Figs. 1 and 2). There was a tendency to circular spasm in certain areas of the viscus, neck and body chiefly.

Figure 1, A and B, illustrates for comparison the normal action following ingestion of fat-containing food, consisting in elongation and apparent increase in tonus of the viscus; on the other hand, barium chloride produced constriction of the neck of the vesicle, the rest being apparently little changed (*C and D*). In *Figure 2*, however, this drug produced only the slightest constriction of the body (*C*), but since considerable oil was expelled there must have been a generalized increase in tonus.

Pituitrin seems to act in a similar manner to barium chloride. In two cats activity resulted from the intravenous injection of 0.5 to 2 cc. (Parke Davis, surgical). In one of them, *Figure 3*, spasm of the neck was produced (B), and reproduced (D), similar to that in *Figure 1 D*. However, the intra-muscular injection of 2 cc. of pituitrin had no effect in two cases, and only a slight action in another, *Figure 4*.

With *lead acetate* no marked activity could be detected. Using 0.3 mg./kilo intravenously, the viscus expressed only a slight amount of the contents in 2 cases; a few globules were evacuated into the ducts.

Thus smooth muscle stimulants produce a contraction of the musculature with some expulsion of vesicular contents, but large doses are required and the effect is short and comparatively slight. This agrees with other findings as to the action of pituitrin in human subjects[2]. *For these reasons it would seem that the clinical use of smooth muscle stimulants such as pituitrin for emptying the gallbladder would have nothing to recommend it.*

Since the ingestion of fat almost invariably results in pronounced emptying of the gallbladder[1, 2, 3, 4, 5], the intravenous injection of fat was a natural step in the investigation of its function[3, 5].

In eight cats the intravenous injection of 2 to 5 cc. of 30% *emulsion of olive oil* in gum acacia produced varying signs of activity in the gallbladder and varying degrees of emptying. In some cases only a small quantity of iodized oil was extruded from the gallbladder; usually emptying was pronounced or nearly complete, *Figure 5*. In one case the common and hepatic ducts were injected with the iodized oil with passage of an extremely small quantity of this material into the duodenum[6]. This would seem to signify contraction of the gallbladder without release of the common-bile-duct sphincter —evidence against a reciprocal action between them. The phenomenon has been observed upon three other occasions, once after feeding fat[7] and twice after intravenous injection of another substance (*Figure 2 D, Figure 13 B*). Some of the cats showed varying degrees of dyspnoea, hyperpnoea and cyanosis after in-

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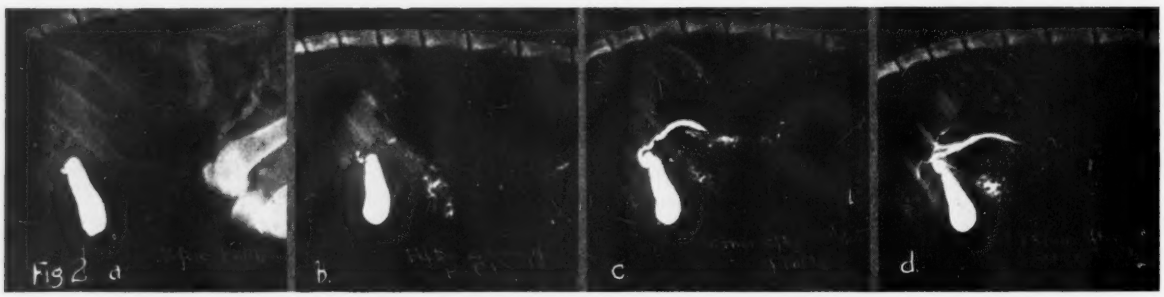
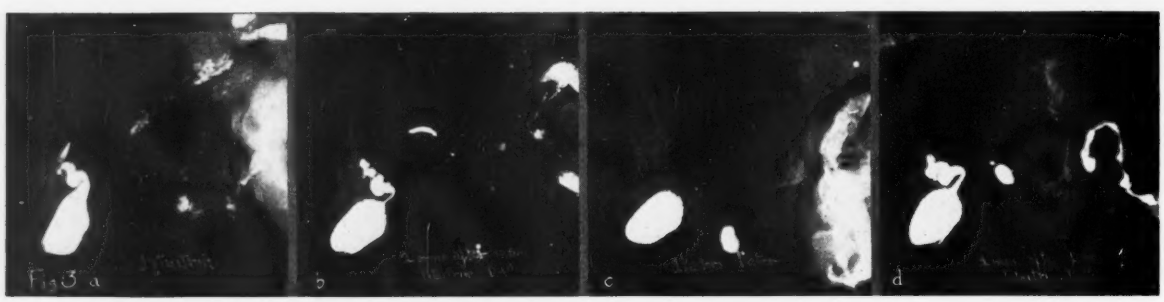
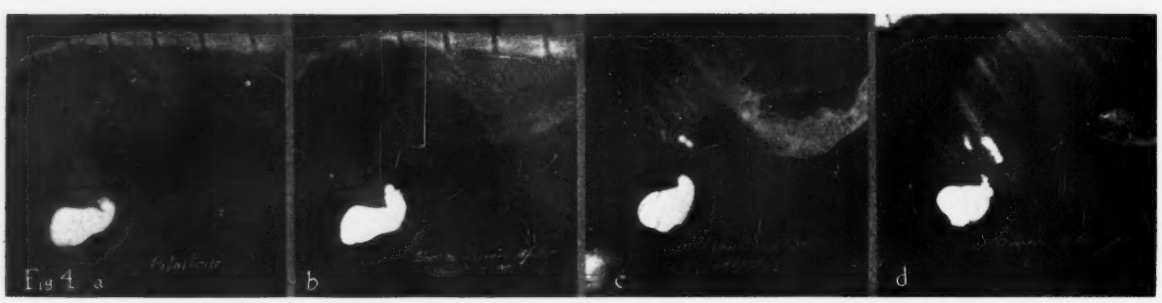
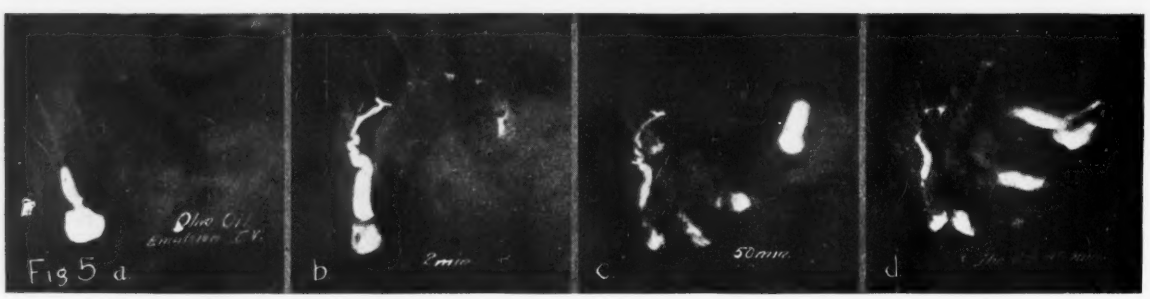
†Bassin—Student, University of Rochester School of Medicine and Dentistry. Whitaker—Second Assistant Visiting Surgeon, Massachusetts Memorial Hospitals. For records and addresses of authors see "This Week's Issue," page 343.

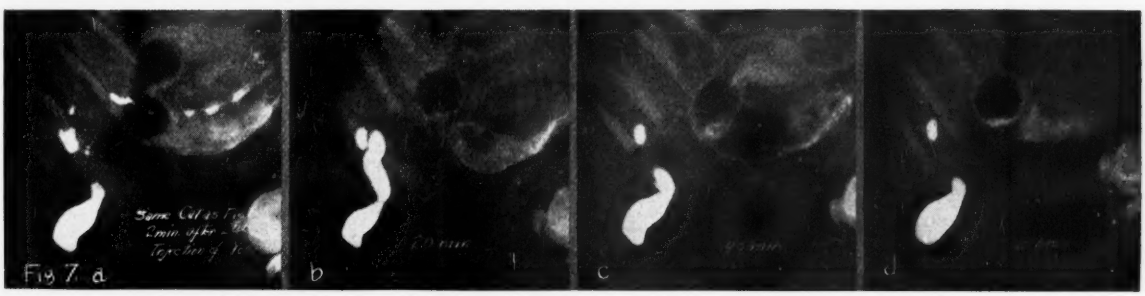


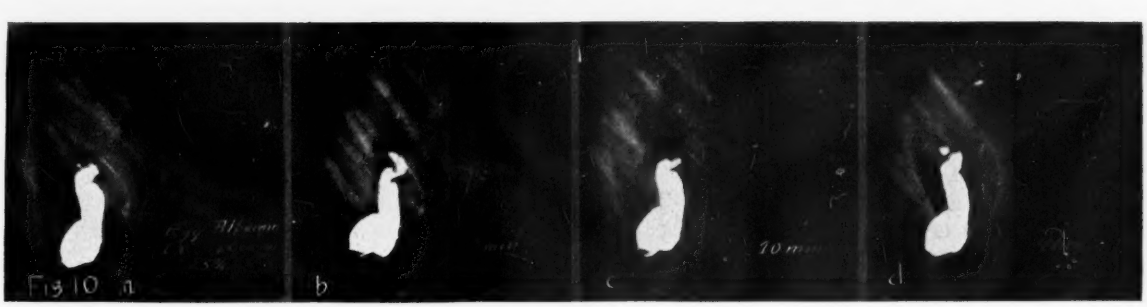




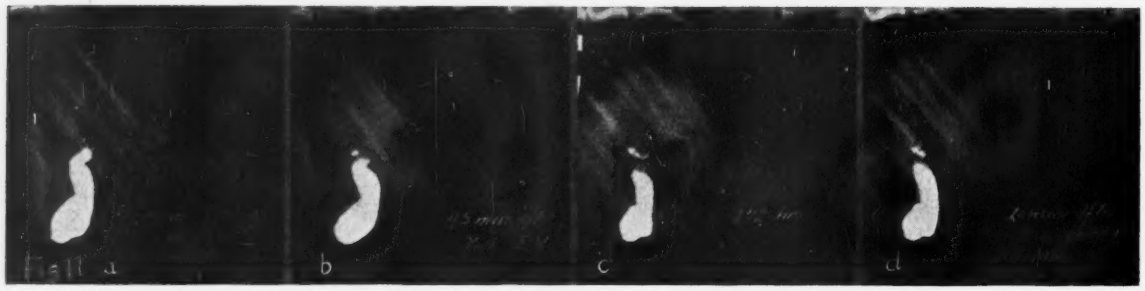


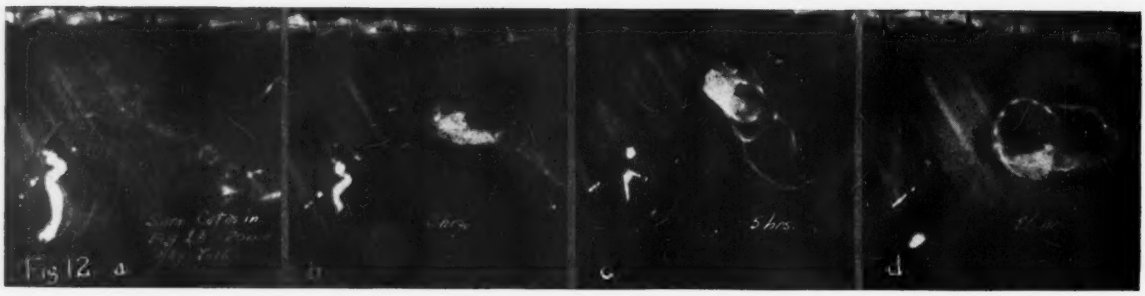
travenous injection of the emulsion of olive oil, while others were symptomless. It could not be determined that this had anything to do with emptying of the gallbladder, though it seemed that emptying was more pronounced in those without reaction.

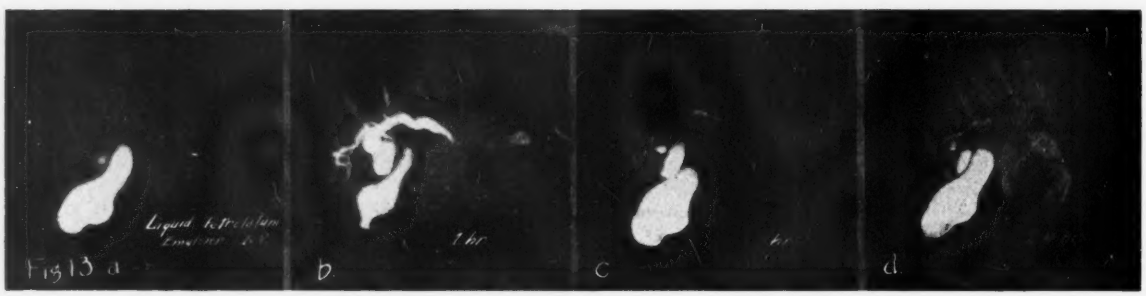


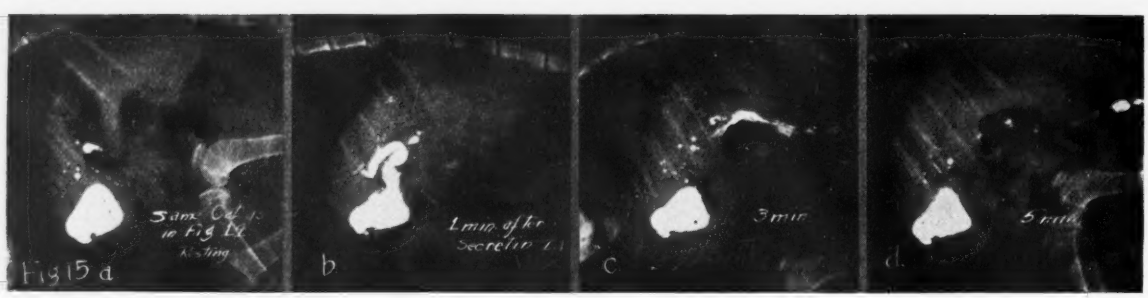


It was suggested by Dr. W. J. M. Scott, that, since *egg yolk* contains a very fine emulsion of fat, possibly this substance would be effective and less likely to provoke reactions. Accordingly 15 to 20 cc. of egg yolk, 25 to 30% in normal saline, were injected intravenously into four

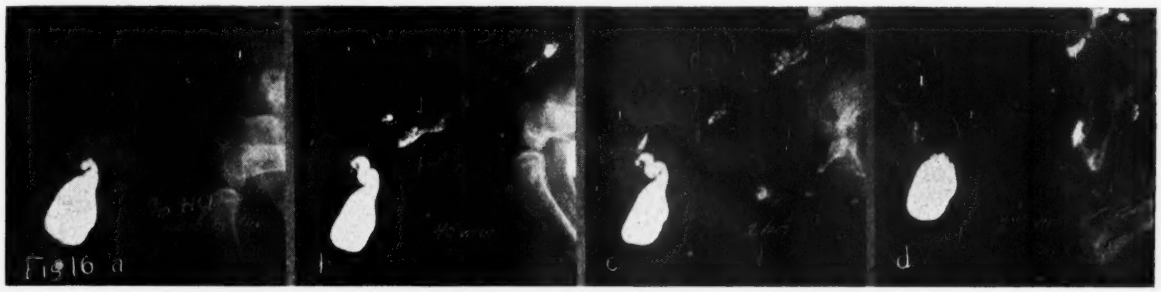


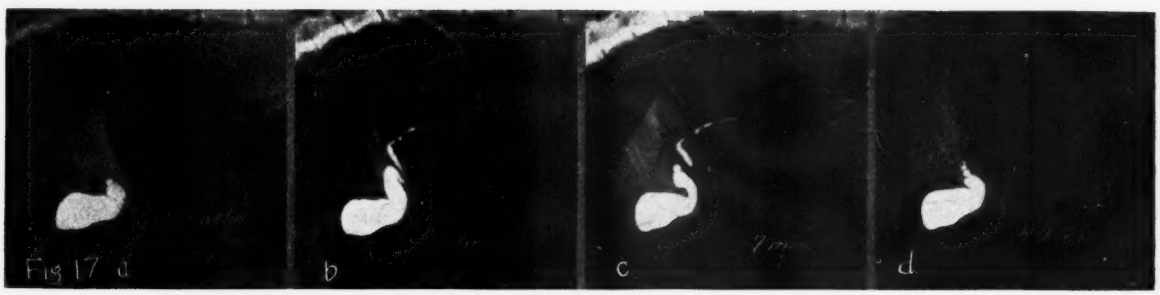


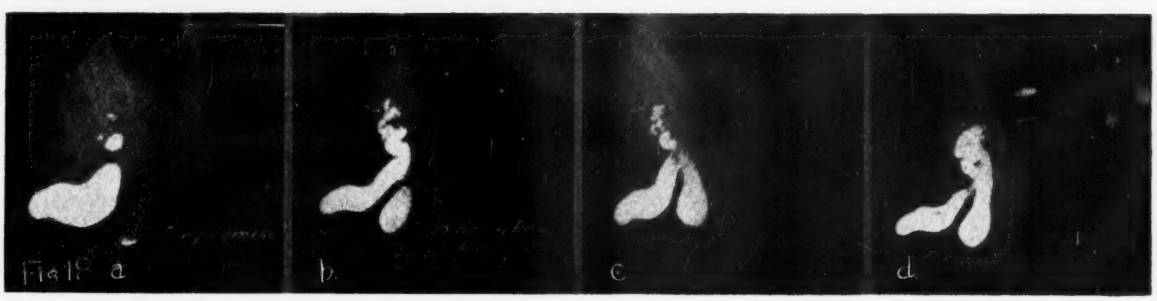


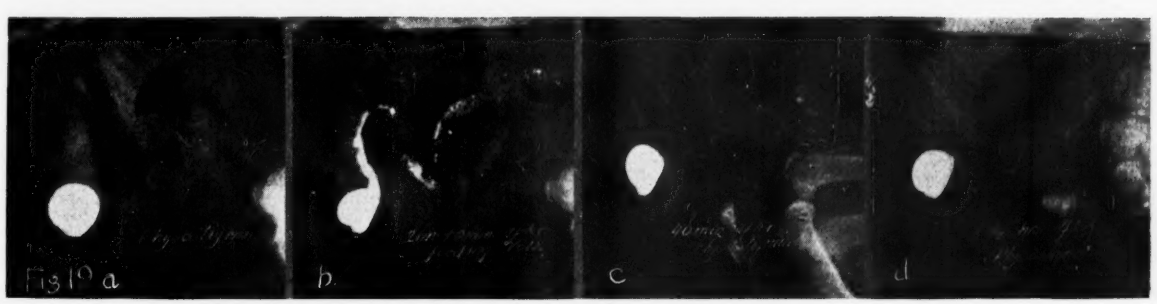


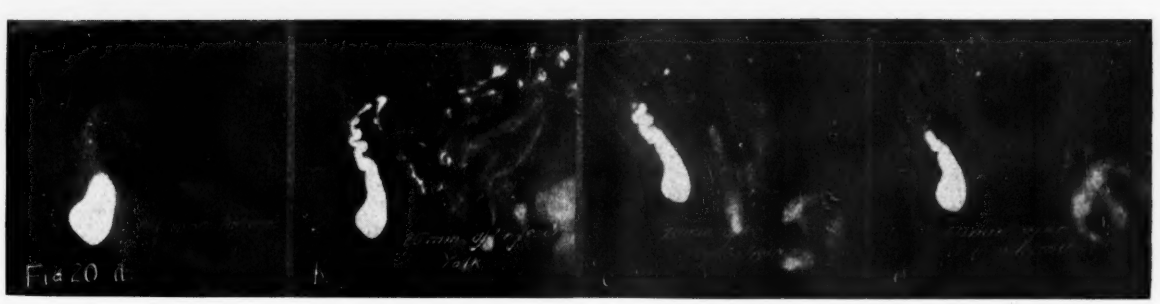
cats. Pronounced emptying resulted in all. In no case was there the slightest reaction. *Figures 6 and 7*, show the effects of two injections of egg yolk, with an interval of three hours. In *Figure 8* a strange phenomenon is noted. The gallbladder of *Figures 6 and 7* had been resting,



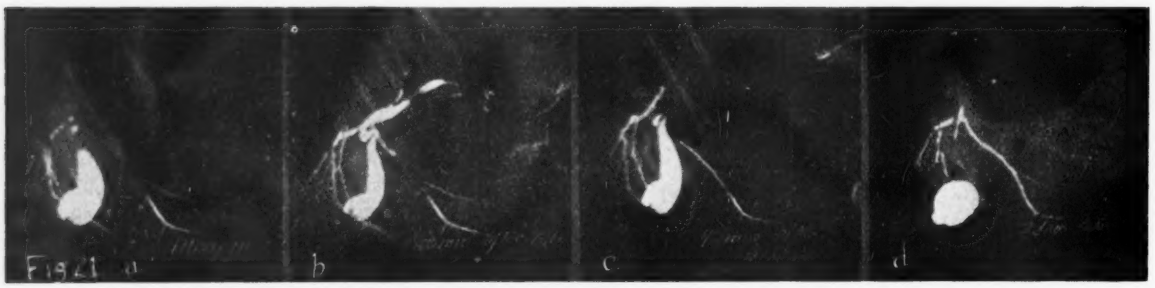


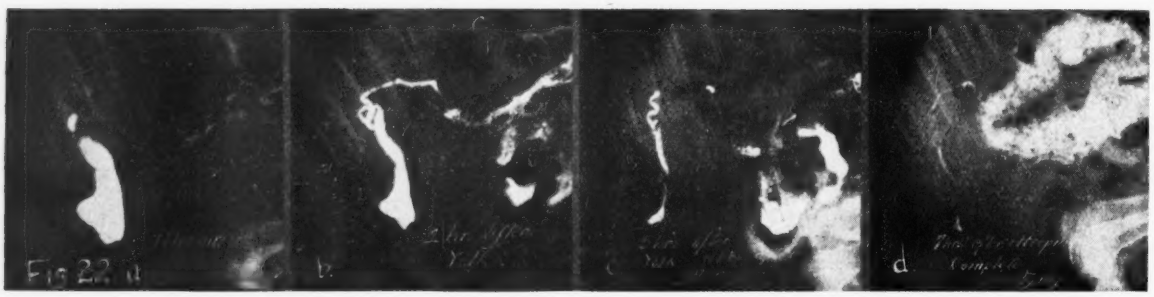


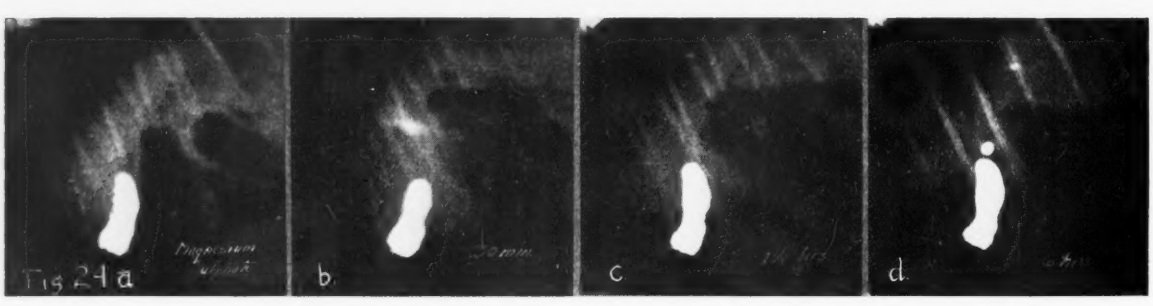




for 16 hours without change (*Figures 7 D and 8A*). It was then desired to see if the vesicle would empty as before but with the cat under ether. Ether was given and a film made as a control, but since nothing was expected to occur after giving ether, the yolk was at once injected







intravenously. Much to our surprise, when the films were developed, it was seen that the vesicle had begun active emptying after the ether was given (*Figure 8 B*) but before injection of the yolk. This continued after the yolk was injected (*Figures 8 C and D*). The phenomenon is difficult to explain because ordinarily the gallbladder will not empty in an etherized cat after feeding egg yolk[3]. Dr. Scott suggests that possibly in the above case the ether produced an increase of blood fat, which stimulated the gallbladder to activity. In any case it would seem that fat in the circulation is a very effective stimulus to motor activity of the gallbladder.

The question arises as to whether other food substances injected intravenously will produce emptying of the gallbladder. Since *glucose,* when fed, produces no apparent reaction in the gallbladder, it would not be expected to do so when injected intravenously, unless as a reaction from the foreign material. In one cat, *Figure 9,* intravenous injection of 20 cc. of 10% glucose solution produced no effect. Protein, when fed, occasionally produces slight contraction of the gallbladder. This prevents us from naming fat as a specific for this effect. In one cat, however, *Figure 10* (same as Figure 9), intravenous injection of 20 cc. 25% *egg albumin* was ineffective. But in this same animal the intravenous injection of egg yolk was unexpectedly without

effect, *Figure 11,* while feeding yolk produced rapid and complete emptying (*Figure 12*). These baffling results illustrate the complexity of the problem and the necessity for further investigation.

Will non-fatty emulsions injected intravenously produce emptying of the gallbladder? In one cat out of four 3 cc. of an *emulsion of liquid petrolatum,* 30% in gum acacia, produced contraction which filled the common and hepatic ducts with iodized oil (3), *Figure 13 B,* but was not sustained enough to overcome the resistance of the common-duct sphincter and empty the contents of the vesicle into the duodenum *Figure 13 C and D.* This, too, requires further investigation.

The question naturally arises as to whether some hormone is elaborated during digestion, which stimulates the musculature of the gallbladder to activity. It has been shown that *secretin* prepared by the method of Bayliss and Starling[8] had no effect on the cholecystogram in dogs[3] and *hydrochloric acid,* which is supposed to induce the formation of secretin, produced no definite change in the cholecystogram in humans, either when given by mouth or duodenal tube[2]. Ivy and Oldberg[9], however, produced almost complete emptying in cats by a purified secretin-like product, and also noted activity after oral administration of N/10 hydrochloric acid. Employing a preparation given us by Dr. Ivy, we have confirmed their results with secretin and also with N/10 hydrochloric acid. *Figures 14 and 15* show a rapid, vigorous, but momentary response without reaction after intravenous injections of secretin in the cat. Ivy and Oldberg postulate a specific substance in the secretin called "cholecystokinin" which they consider responsible for the activity of the gallbladder musculature. This would seem to be confirmed by the effect of N/10 hydrochloric acid, *Figure 16.*

However, we cannot agree that these results indicate the presence of a specific substance in secretin, or associated with it, which produces emptying of the gallbladder. There are too many other substances which will produce a like effect, Figures 13, 17. If the "cholecystokinin" of Ivy and Oldberg is specific, why should the intravenous injection of a small quantity of egg yolk or an emulsion of olive oil be even more effective? Further, with the stomach removed, eliminating the hydrochloric acid factor, the gallbladder will empty after the ingestion of fat[6].

Boyden[10] discovered that adrenalin injected intravenously produced definite, though momentary, emptying of the gallbladder, and concluded that this indicated a motor relationship of the sympathetic system to the musculature of the gallbladder. But that this emptying was not due to stimulation by the specific principle in adrenalin is indicated by that fact that pronounced asphyxia, which is supposed to stimulate the production of epinephrin, had no effect upon the gallbladder[3]. *Figure 17* shows the effect of *adrenalin* intravenously (Parke Davis) upon motor activity of the gallbladder—definite but momentary. This was accompanied by rather pronounced symptoms characteristic of the drug.

The vagus nerve has been supposed by many to be motor to the gallbladder. If this is true, drugs which increase vagal tone or stimulate its endings should produce contraction of that viscus. *Physostigmine* and *pilocarpine*[2, 3] have been shown to have no effect. *Pilocarpine* (3 mg. /kilo, intravenously) in two of our experiments upon cats produced a visible change in the contour of the gallbladder, but this activity was of short duration and lacked the force to eject the contents of the viscus, except for a few small globules expressed into the ducts. The organ in both cases came to rest in less than ½ hour.

The use of *calcium chloride* (0.2 gm. /kilo injected intravenously) in two cats produced slight contraction of the viscus, and with the use of *nicotine* in two experiments (0/1 mg. /kilo—injected intravenously) a similar result was obtained.

Ergotamine, however, produced definite but slight emptying of the gallbladder in two cats. (*Figure 18.*) Whether this result came by decrease of sympathetic tone, or for some other reason, we cannot say.

In the preceding section the action of drugs which produce emptying of the gallbladder has been demonstrated. Now miscellaneous effects of certain drugs will be presented. Not only does *physostigmine* fail to produce emptying of the gall-bladder but in two cats emptying resulting from fat feeding was immediately checked by intramuscular injection of 1 to 1.5 mg. of physostigmine (*Figures 19 and 20*). A plausible explanation would seem to be that systemic effects of the drug checked the absorption of fat with inhibition of the gallbladder musculature.

Atropine sulphate[3] 20 mg. intramuscularly, likewise inhibited emptying during fat digestion (*Figure 21.*) This might be interpreted as the natural result of atropine administration if physostigmine did not do the same thing, and if in another cat emptying had not continued to completion in spite of atropine, (*Figure 22.*) A necropsy, performed immediately upon this animal, disclosed a gallbladder contracted into a firm knot with its lumen devoid of fluid, even dry. This is interesting and significant in view of repeated statements that the gallbladder never completely empties[11]. That this result was not due to the atropine is indicated by similar findings after fat feeding in animals not given the drug.

The question arose during our experimental work as to whether the gallbladder could be made to empty under barbital anaesthesia. In seven cats under barbital, 30% olive oil emulsion in gum acacia was injected intravenously. There was definite (sometimes pronounced) emp-

tying in all of them. Feeding egg yolk produced like results. (*Figure 23.*)

Calomel (0.16 mg. per kilo) given to two cats by stomach tube, produced no appreciable alteration in contour of the gallbladder shadow, and no emptying was noted.

Magnesium sulphate, 35 to 50 cc. of 25%, given orally to two cats, produced no emptying or signs of activity in the gallbladder. (*Figure 24.*) In three cats 15 cc. of 25% solution of *magnesium sulphate* injected intramuscularly produced a moderate amount of activity of the gallbladder with the expulsion of some of the contents, sufficient to fill the ducts in two cases, while in the third the ampulla seemed to be dilated with oil but none was expressed into the ducts.

When *sodium salicylate* (0.6 g. /kilo intramuscularly) was employed in two cats, no appreciable change in the contour of the gallbladder was produced, and with *nitro-glycerine* (0.76 mg. /kilo intravenously) slight expulsion of the contents of the viscus was noted with apparent contractions of the organ, although relaxation of the viscus was the expected result.

SUMMARY

1. By the use of a radiopaque medium in the gallbladder it was found that the smooth muscle stimulants, barium chloride, pituitrin, and lead acetate, produced slight but definite contraction of the viscus.

2. Giving olive oil emulsion and egg yolk intravenously produced expulsion of the contents of the gallbladder more pronounced than with any other substance.

3. Rapid and vigorous but momentary expulsion of the contents of the vesicle was produced with "cholecystokinin."

4. Ergotamine produced slight emptying of the gallbladder in some of the experiments. Physostigmine not only failed to produce emptying of the viscus but checked the process when once started. Atropine, while it ordinarily inhibited emptying, failed in one case, the gallbladder emptying completely in spite of it.

5. The gallbladder could be made to empty by fat feeding while the animals were under barbital and occasionally while under light ether anaesthesia.

6. Calomel and magnesium sulphate administered by stomach tube had no effect, and magnesium sulphate intramuscularly produced only slight activity.

7. Fats, in emulsion, given either by mouth or intravenously, appear to be the most constant and effective means of evacuating the gallbladder.

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In an article published since this paper was submitted, Higgins and Wilhelmj, *Am. Jour. Med. Sciences*, 178:805 (Dec.) 1929, report that they have been unable to produce emptying of the gallbladder by intravenous injections of emulsions of fat, and from this conclude that it does not occur.

THE ARGUMENT OF DR. WOODWARD* ON VACCINATION BEFORE THE COMMITTEE ON PUBLIC HEALTH OF THE MASSACHUSETTS LEGISLATURE

Mr. Chairman and Members of the Joint Committee on Public Health:

WHEN I came before you last year in support of the bill to include the private school child among those protected from smallpox by vaccination, I stated and I repeat it now that were this 1790 (and I might as well have said 1795) instead of 1929, there would be in the room before me and behind me scarcely one face unpitted with smallpox.

Before 1796, when the Gloucestershire physician began vaccination against it, smallpox was a children's disease, for everybody had it in childhood and, if a survivor, was thereafter practically immune; it was responsible for 25% of all recorded deaths, and an unscarred face was so unusual that it attracted immediate attention, so unusual that one of the beauties of the Court of Louis the XIV of France lives in history, through the memoirs of the Duc de St. Simon, for this reason and for no other. Louis the XV of France died of smallpox as did the dauphin, his grandfather. So did the Emperor Joseph of Austria, an Elector of Saxony, an Elector of Bohemia, a Queen of Sweden, a Czar of Russia and several princes of the royal family of Spain, while the family of William the IIIrd of England was almost wiped out by the scourge, his wife, his mother, his uncle and two cousins dying of the disease.

No wonder the Germans had a proverb, "From love and smallpox few escape", or that Sir Robert Walpole wrote that poetry is as universally contagious as smallpox; everyone catches it once in a lifetime at least and (despairingly) the sooner the better.

I have stood before you and your predecessors so many times arguing for the extension of our

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public school vaccination law to cover the children of the private schools as well, that I have today no new arguments to present to you in favor of that measure, nor, the personnel of the Committee being practically the same as that of a year ago, do I care to consume your time in repeating what I said last year, but I would impress upon you that almost all of the reasons given for further protection have exactly the same weight if used in furtherance of the Commission of Health's bill, which, going much further than anything I have ventured to bring forward, provides (if enforced) an almost unsurmountable barrier against the introduction of smallpox from without or its propagation from within.

We know that smallpox is more prevalent in no country (bar India) than in the United States. We know that under the laws or absence of laws and even of laws favoring its spread in the majority of our states its frequency is not diminishing. We know that, despite the generally present mildness of the type presenting itself, continual outbreaks of the virulent form with its high death rate are occurring in widely separated sections of the country. We know that under provisions similar to those called for by Dr. Bigelow smallpox has been practically wiped out in Porto Rico, Hawaii, Guam and the Canal Zone, and brought down to nothingness in the Philippines, that Turkey where smallpox has been for centuries practically universal has by similar measures brought its incidence far below that of England with its conscientious objector law and consequent neglect of vaccination, that Germany practically free from the disease up to the time of the World War, infected extensively with it during the course of that struggle, in less than four years wiped it out almost completely We know that it is a rare disease in Norway, Sweden and Denmark, all thoroughly vaccinated countries, that France, no longer indifferent, is now a fairly thoroughly vaccinated country and we also know that here in Massachusetts in one year, *last year*, we have had an epidemic in Gardner and another in Middleboro for the extremely simple reason that those towns had an unvaccinated body of persons ready to become infected by the resident of the former place who on a trip in Maine purchased a newspaper of a boy with a walking case of the disease. Incidentally Maine has a conscientious objector law which there as elsewhere renders any compulsory law null and void. Incidentally again Maine by no means the most populous of the New England states has had for the last fifteen years more smallpox than any other, Vermont, a state without a general vaccination law or a school law, standing second.

Inasmuch as a body of citizens who made no appearance at your hearing went last year to Governor Allen asking exemption from the law we now have, on the statement that religious scruples prevented compliance with its provisions, it may be of interest to know (I have it on good authority) that the notoriously unvaccinated condition of Middleboro and the non-enforcement of the general school law in that town may not be unconnected with the fact that the Chairman of the Board of Health and possibly one other member of the Board belonged to the church with which the twenty-six citizens who went to Governor Allen were affiliated. For the first time in the history of the Commonwealth so far as I am aware religious scruples have been brought forward as a reason for exemption from a general sanitary law. Let no one think for a moment that the call of the Commissioner of Health for the general vaccination of young children is in any way a new proposition or unique in the United States. As I have said, it is part of the law in Guam, Hawaii, Porto Rico, the Canal Zone and the Philippines.

It is the law in Kentucky and has been for many years, where also the employment of unvaccinated persons is unlawful. All inmates of charitable institutions as well as all school children must be vaccinated as well as any person crossing the state lines. Whether all the provisions of this law are enforced is another story.

Maryland vaccinates all children during the first year of life, requires certificates from all school children and provides for no exemption.

In British Columbia all residents, all students, teachers, janitors, etc., in schools, high schools, and colleges must be vaccinated, but a conscientious objector clause makes the law useless. Anyone can of course say he has conscientious objections to this law or to any other, prohibition for example.

Manitoba substitutes quarantine in place of vaccination for a conscientious objector, but a believer in Christian Science is exempt from even this alternative though why he cannot spread smallpox as well as anybody else is beyond my powers of reasoning to understand.

Nova Scotia and Ontario vaccinate children under twelve months and under three months respectively. Both have the conscientious objector appendage and the Health Officer of Ontario says the law is a dead letter. Results would substantiate this for Ontario has had 19,933 cases of smallpox in the last 15 years.

Nor is my proposition to at least vaccinate the children of the private schools unique. Rhode Island and New Hampshire do it now. Arkansas excludes all unvaccinated children from such schools and holds school boards, teachers, parents and guardians equally responsible for violation of this law. New York includes teachers and janitors, its regulation covering for some unknown reason only cities of 50,000 or more inhabitants. In Pennsylvania no unvaccinated child may attend a public, private, parochial school or kindergarten and any principal who admits such a child may be fined from $5

to $100 or jailed for not more than thirty days. New Brunswick has compulsory vaccination for both teachers and pupils and the Province of Quebec includes convents and colleges in the list of places banned to the unvaccinated.

I have come before you in the past with the support of the Catholic Clergy, who have supervision of some 100,000 children in the parochial schools, of the Cardinal and the Roman Catholic Bishops of Springfield and Fall River, of Chambers of Commerce of every large and of many of the small cities in the state, of the heads of practically all the large private schools and the state normal schools, of every college but one, of large life insurance companies and of course of physicians generally. There has been no opposition from any school authorities whatever and several well-known colleges, apparently despairing of help from the legislative body, have themselves by rigid provisions excluded unvaccinated students from their halls. Among these are Smith, South Hadley and Wellesley and lately Harvard University which now admits no unvaccinated student into any of its departments, graduate or undergraduate, law, medicine, business or theology.

This is the same Committee that reported my bill favorably last year. The bill is identical with one which has three times passed the lower house and last year received the approval of the Senate.

If in your wisdom it seems to you unwise at this time to favor Dr. Bigelow's bill I ask you in all confidence to do, as you did last year, look on mine with favor and report it to the Legislature for affirmative action.

But whatever you do, allow no religious scruple clause, or conscientious objector clause to vitiate either of them as it does any vaccination law no matter how strict or how worded. Rather abolish all laws and let smallpox run wild until Massachusetts emulates let us say Montana which now in proportion to its population has about ninety times as many cases as do we (13,010 to 548,889 people, we 751 to 3,852,356). I have no fear but that an object lesson like that to Massachusetts citizens would cause a universal cry for as rigid a law as that which has enabled Porto Rico to pass six years without a case, Hawaii fourteen except at quarantine and Guam since we took possession in 1898 and vaccinated every man, woman and child on the island.

At these hearings the dangers attending vaccination are often stressed. I wish to state most emphatically that vaccination properly performed with proper virus and properly cared for afterwards is practically without danger

Since 1917 the United States Army has vaccinated approximately 4,700,000 persons, the Navy 950,000, the Public Health Service 2,918,748 and of all these eight and one-half million persons but one man died, so far as the records show, and he had pleuro pneumonia, as did George the Vth of England, and nobody has ever claimed that pleuro pneumonia was a sequel of vaccination. In 1924, when Detroit suffered from an epidemic of virulent smallpox, there were 817,000 vaccinations without a death or a serious accident and so great was the need, so severe the epidemic, that many people were vaccinated whom no one under ordinary circumstances would have touched or asked to touch. Seven hundred and seventy-three of these persons were the mothers of newborn babies, 676 were babies one or two days old, 368 were afflicted with tuberculosis, 644 had scarlet fever, 425 diphtheria, 52 had measles, 90 erysipelas and 21 venereal diseases. Let no one persuade you gentlemen that vaccination properly performed is a dangerous procedure. It is not, it never was, it never need be.

THE NATURAL HISTORY OF ACUTE GLOMERULONEPHRITIS*

BY ELI MOSCHCOWITZ, M.D.†

BETWEEN its beginnings and terminations acute glomerulonephritis may be transmuted into many clinical syndromes. Some of these syndromes have received connotations which imply that, biologically speaking, they are distinct disease species, whereas, in truth, they are merely clinical phases of one and the same disease. As in so many disorders, the clinical aspects of glomerulonephritis cannot always be interpreted from pathological data, and vice versa. Our knowledge of the morbid anatomy and pathogenesis of glomerulonephritis is fairly clear, but why the clinical evolution is in one direction and not in another is as yet quite obscure. To appreciate fully this evolution it is essential that cases be observed from the beginning to the end. The difference between the initial and final stages of the same disease may be as great as that between the tadpole and the frog or the pupa and the butterfly. Observations over a span of the entire course afford but a narrow perspective of the problem, for we can only guess concerning the beginnings, and we are only too often ignorant of the end. Such a study is, therefore, more within the scope of those in general practice than of those in hospital practice. In hospital work one usually

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sees only the termination. Many of the published observations and statistics regarding glomerulonephritis lose much of their import because we are not informed in which phase the disease was observed.

The two most common disorders which glomerulonephritis may follow are streptococcus sore throat and scarlet fever. These account for about nine-tenths of all cases. In the remaining tenth are other streptococcus infections, such as pneumonia and skin infections. Some cases of "war" nephritis have been shown to be glomerulonephritides.

The relation of the streptococcus to glomerulonephritis is, therefore, close, but the mechanism whereby this germ affects the kidney is still unknown. It is a remarkable fact that, aside from the embolic glomerular lesions noted in subacute bacterial endocarditis (lesions different pathologically and genetically from other forms of glomerulonephritis), the streptococcus is not demonstrable within the kidney by our present means. Nor, with the exception of a few doubtful instances, has glomerulonephritis been thus far experimentally induced by the injection of the streptococcus or its toxins. Furthermore, the nephritis does not appear at the height of the infection, but in the subsiding stages. Whether, therefore, we are dealing with a tissue or bacterial specificity, to a toxin not yet isolated, to allergy, or some other unknown mechanism of bacterial invasion, is still an absorbing problem. Nor do we know why the lesion is often progressive despite the disappearance or removal of the so-called "focus".

We shall briefly review the salient features of the pathology of glomerulonephritis.

The earliest phases consist in a diffuse swelling of the intra- and extra-capillary endothelium of the glomerular tufts so that the glomerulus appears bloodless and seems too large for the capsule of Bowman. Soon there is proliferation of these cells, especially marked in the capsules, so that either crescents are formed or the entire glomerulus is circumscribed by young fibroblasts. In this stage, the kidney grossly is "large and white", the inflamed glomeruli appearing as small elevated red dots upon the surface or cross section. Already at this stage there is abundant proliferation of young connective tissue cells (round cells and fibroblasts) throughout the parenchyma, especially marked around the glomeruli. The subsequent changes depend nearly entirely upon the spread and senescence of the newly formed connective tissue. Thus we find increasing circumferential intra- and extra-capsular fibrosis with gradual shrinkage and even disappearance of the glomeruli, progressive thickening and fibrosis of the intertubular connective tissue with consequent deformity and obliterations or dilatations (compensatory) of these tubules. In this stage, the surface is finely or coarsely irregular, the capsule is adherent and the kidney is more or less contracted, depending upon the age of the lesion. This is the stage of the granular contracted red kidney. If the disease continues, all the above elements reach their maturation; the normal anatomical relations become almost obliterated, the deformity and contraction become extreme, and we obtain the so-called "secondary contracted kidney". Coincidentally with the above changes there are important lesions of the blood vessels (aside from the capillaries) of the glomeruli. These have been recently studied by Fishberg[1], and consist in necroses of the vessel wall, in proliferation of the intima and elastica, and in a notable hypertrophy of the muscular coats of the arteries. Eventually true arteriosclerosis is induced, not only in the renal arteries, but in the arteries of the greater circulation. The arteriosclerosis, we hold, is the result of the hypertension and not of the infection.*

In every stage, there are also profound changes in the tubular epithelium, consisting in fatty, parenchymatous and hyaline degeneration, or combinations of these.

The pathology and genesis of the lesions of glomerulonephritis differ in no wise from those of the ordinary granuloma or productive inflammation of any origin, and the sequence of events is comparable to that witnessed in the involuting ovary, for instance.

Manifestly, being a productive inflammation, we cannot conceive of a glomerulonephritis healing anatomically in the sense of a complete *restitutio ad integram*. Some scarring must result, no matter how slight, but singularly, we know little or nothing of the healed lesion. Valid instances of such healed kidneys, in my experience, have thus far been impossible to obtain.

1. *Normal course of acute glomerulonephritis.* In a typical case we find the following sequence of events. Usually the disease occurs in a young person, and within two to four weeks after the onset of a sore throat or scarlatina, albumin appears in the urine, with hematuria and formed elements. Puffiness in the face or extremities is soon noted; the blood pressure rises, the systolic rarely above 180 mm. Hg. There is usually some azotemia which is not very marked; headache is common. If the hypertension persists, and especially if the diastolic pressure rises, some degree of retinitis becomes manifest, as evidenced by hemorrhages and exudations in the retina with some tortuosity and irregularity of the vessels and, rarely, a papillitis. Occasionally symptoms of so-called "uremia" appear with marked cephalalgia, disorientation, twitchings and even convulsions.

*It is important to recognize this dual origin of the lesions found in the later phases of glomerulonephritis. The necrosis and cellular infiltrations of the arteries are undoubtedly the direct result of the infection, and perhaps some of the early intimal changes. But the sclerosis of the vessels and some of the obliterative parenchymal lesions consequent to vascular occlusion are the result of the superimposed hypertension. This conception will help clarify much of the current haziness concerning the pathogenesis of glomerulonephritis.

In the majority of instances, usually within a few weeks after the onset, clinical improvement begins. First, the subjective signs disappear; the azotemia returns to normal, the hypertension and puffiness subside, the hematuria disappears; the albumin persists longest, even for weeks or months after all other evidences of nephritis have gone. With the subsidence of the hypertension, the appearance of the retina soon returns to normal.

The severity of signs and symptoms bears little relation to prognosis. I have witnessed cases with a severe onset recover completely, and have seen mild cases progress fatally. There is no one sign or symptom that appears of special prognostic significance. The issue depends upon a composite appreciation of all clinical phenomena. As a general rule, I have noted that if the albuminuria remains marked, and especially if the blood pressure remains above normal within two months after the onset, the prognosis is unfavorable. Death is either early or late; if early, it usually takes place within a few months after the onset; if late, there is a long period of comparative well-being and death only comes from one to over twenty-five years after the onset. We shall discuss these latter cases more particularly farther on.

2. *The Syndrome of "Pseudo or Transient Arteriosclerosis".*

Recently, I[2] reported this clinical syndrome, the result of the clinical observation of 8 cases and one autopsy. In the course of an acute glomerulonephritis the radial arteries may feel decidedly thickened and even tortuous, so that the diagnosis of arteriosclerosis is justifiable. If the patient improves and the hypertension subsides, this feel of thickening disappears; not, curiously enough, when the hypertension returns to normal, but two or three weeks later. This feeling is, therefore, not entirely due to the increased intra-vascular tension alone, but in all probability to the disappearance of the hypertrophy of the muscularis, a lesion which Fishberg[1] has emphasized is always associated with glomerulonephritis and compensatory to the hypertension. We are indebted to Fischer and Schlayer[3] for the demonstration that it is mostly the muscular hypertrophy, and not the other changes in the coats of the vessel, which affords the sensation of thickening in an arteriosclerotic vessel. In the case which ended fatally, no arteriosclerosis of the aorta was demonstrable. The other cases observed recovered completely.

3. *The Latent or Albuminuric Phase of Glomerulonephritis.*

This is a common and extremely important eventuality for upon its recognition depends the interpretation of many of the albuminurias of otherwise obscure origin observed in the adolescent and early middle periods of life. The diagnosis is especially difficult, not only because we have not observed the earlier phases, but because often there is no hypertension. We are so accustomed to think of hypertension as always associated with glomerulonephritis that it is difficult to understand that, in the inactive or latent phases of the disease, hypertension may be absent. Indeed, I have witnessed proven cases of glomerulonephritis, in which even a terminal hypertension was absent. It must not be understood that in such cases hypertension was always absent; doubtless in the early phase of the disease, there was hypertension.

Practically, the only signs and symptoms which these patients reveal is a more or less marked albuminuria. The patient usually has a hypertension of a moderate degree. He generally looks and feels well; he may appear pale and at times puffy; his wind is sometimes short; there is a slight left ventricular hypertrophy and he usually has a nocturia. His renal function is, however, adequate and he "carries on" without much difficulty. *The important thing to recognize is the fact that this latent period may last many years.* One case which I followed from its very beginning, in 1907, died only this year. Another patient, a cook, whom I have followed since 1911, and who has passed constantly since that date a urine that boils a thick cloud with Heller's test, feels comparatively well. She has a hypertension continuously, varying around 180-95, but there is no azotemia, no neuroretinitis, and she complains only of shortness of breath. Dr. Elwyn of New York tells me he knows of one case of glomerulonephritis of 25 years' duration. Cases such as these make one reserved in prognosis when confronted with a case of albuminuria of long duration, and which clinically is mild and slowly progressive. On the other hand, the latent period may be much shorter, lasting only a few months.

Some of these patients in whom albuminuria is not marked and the blood pressure is normal simulate cases of orthostatic albuminuria. Inasmuch, however, as the morning urine is never entirely free from albumin, and these patients offer none of the other stigmata common in orthostatic albuminuria (lordosis, drop-heart. vasomotor instability), they cannot be considered as true cases of orthostatic albuminuria.

It has often been stated that acute glomerulonephritis in childhood or early life may heal clinically, remain dormant for many years, then relight and cause death from hypertensive nephritis in middle or later age. Formerly, when the renal origin of hypertension was considered paramount, such a concept was much favored, because it helped explain the cause of hypertensive disease of later life. Confronted with this malady, a history of an attack of scarlet fever in the juvenile years was painstakingly inquired into, and usually, of course, found. If, furthermore, one obtained the story that this attack was accompanied by kidney trouble, the chain of circumstances was considered complete. If the inquiry failed to yield such information,

the patient was considered to have passed through a silent attack. Such reasoning presumes too much: (1) that every case of scarlet fever is followed by a nephritis; when, in fact, only about 5-10% acquire a renal complication; (2) that if nephritis was diagnosed, it was a glomerulonephritis; the latter, indeed, forms only the smallest proportion of the renal complications of scarlet fever (Munk); the majority consist in simple fatty or parenchymatous degenerations of the tubular cells, in which complete healing, anatomically and clinically, is not only possible, but the rule; (3) that, if a history of nephritis was not elicited, such a nephritis was a silent one; while this is of course possible, it is hardly probable.

The sequence of events will, therefore, always be difficult to prove. But the main argument against such reasoning is based upon our knowledge of the pathogenesis of productive inflammation. It is hard to conceive how an organ, such as the kidney, the seat of an abacterial productive inflammation, can remain pathologically active during such a long span of years without revealing some clinical trace; or, if, anatomical healing has taken place, how, without a fresh insult, such a scarred organ can relight and become the active granulomatous mass that we know the "secondary contracted kidney" to be. As far as my observations lead me to believe, when an acute glomerulonephritis passes into the subacute or chronic stage, there is always a clinical continuity. Proof that such an anatomical transition may occur, without a clinical continuity, has thus far not been submitted. In my own experience, I do not recall one instance of terminal hypertensive disease in a middle-aged person in whom the history suggested even remotely a possible juvenile nephritis following scarlet fever, and in whom no clinical continuity was manifest, which proved at autopsy to be a glomerulonephritis. They all revealed the kidney condition associated with essential hypertension. In this connection, a follow-up of verified scarlatinal nephritis should throw strong light upon this phase of the problem. Duyvis[5] studied 30 patients who had had scarlatinal nephritis sixteen years previously. All were well. A few showed traces of albumin in the urine.

4. *The Nephrotic Phase of Glomerulonephritis.*

In a previous paper[4] I discussed the meaning of the term "nephrosis". I expressed the view that "nephrosis" is not a disease in the sense that it has a precise background in pathology or a specific cause. After many shifts in interpretation, the term has come to connote a clinical syndrome, which has a number of pathological backgrounds and many causes. This syndrome, the main features of which have been evolved by Epstein, consists briefly in the following signs and symptoms. The onset is insidious; there is marked albuminuria with few formed elements; the specific gravity is high; generalized edema is pronounced; the protein content of the blood is reduced and the normal ratio between serum albumin and globulin is reversed; there is a cholesterinemia, usually profound; the blood pressure is within the normal range and the basal metabolism is usually shifted to the minus side. The disease usually affects the young. The pathological background of such cases was supposed to be that of the original concept of the term "nephrosis", that is, a pure parenchymatous degeneration of the tubular epithelium, without cellular infiltration, and therefore a lesion potential of anatomical healing. As a matter of fact, the following lesions have been found in the cases that have come to autopsy in Mt. Sinai Hospital: (1) lipoid degeneration of the kidney; (2) parenchymatous degeneration of the kidney; (3) amyloid kidney; (4) subacute or chronic glomerulonephritis. It is with the latter lesion that at present we are interested. The clinical transition of an acute glomerulonephritis, with all the signs and symptoms described previously, to that of a true nephrosis is by no means uncommon. When confronted with the clinical picture of a nephrosis without having witnessed the transition, one can often diagnose the case as one of glomerulonephritis by either the history of a previous infection, or the history of hematuria, or clinical evidence of greater or lesser latent period. If such evidences are absent, a moderate hypertension if present is significant, for it is absent in the nephroses with other backgrounds of morbid anatomy.

Conclusions. Acute glomerulonephritis has no prescribed course but has various clinical evolutions. These evolutions, as far as one can judge, are not the result of mutations in the morbid anatomy, but are the result of unknown factors. It is impossible to predict in the early stages in which direction the evolution will proceed, and it is hazardous, therefore, to make any prognosis either in regard to healing or the duration. In the majority of instances healing occurs, and the duration of the disease in such instances is only exceptionally over two months. If residual symptoms persist at the end of this period, the patient passes, as a rule, into the latent stage, which may last for many years, and in which there may be no signs or symptoms except a persistent albuminuria. Hypertension in this stage is often lacking. All evidence seems to show that the common cardiovascular hypertensive disease of middle life is not the result of a glomerulonephritis in childhood, unless there has been clinical continuity. When an acute glomerulonephritis heals clinically, apparently it remains healed. Anatomically, the healed lesions of acute glomerulonephritis are not definitely known. When death results, it may occur at any time between the first weeks and two, or perhaps more, decades. Acute

glomerulonephritis may mask under the syndrome of pseudo- or transient arteriosclerosis, and many cases terminate in the syndrome of "nephrosis".

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A POSSIBLE EXPLANATION OF THE SYMPTOMS OF UNDULANT FEVER

BY WALTER A. GRIFFIN, M.D.*

MUCH has been written, in the last few years, on the subject of undulant fever. The etiology especially has been studied and the various strains of the Brucella melitensis have been separated. It has been proved, also, that raw milk is usually the vehicle of infection, and in particular goat's milk has been known for years to be a means of infecting human beings. More recently King[1] and his associates have shown that man may contract the disease by drinking raw cow's milk. It is true that those who come in direct contact with infected animals frequently have the disease even though they do not drink milk, possibly from abrasions of the skin. The hypothesis that infection gains entrance most frequently by way of the digestive tract might still be entertained, however, since contamination from hands often is carried to the mouth.

It has not been known where the principal site of bacterial activity, after infection has gained entrance into the body, may be situated. The phenomena of the disease are usually explained as due to a chronic septicemia without definite foci of bacterial growth. The symptoms of the disease, also, are so variable that no particular organ or tissues come naturally under suspicion. Hardy[2], in his recent article, has made an exhaustive study of the symptomatology of the illness, but in it there is no definite indication that any particular parts of the body harbor the bacteria.

It would seem reasonable to suppose that in the intestinal tract might be found a nidus of the infection if the entrance of the bacteria in many of the cases, and hypothetically of all, is by way of the mouth. Pathological studies, however, have shown but little change from what might be expected in any severe feverish condition, either in the intestinal tract or elsewhere. One recent practice of medicine dismisses the whole subject of the morbid anatomy of the disease with these words—"There is no special pathology."

That there may be definite intestinal lesions in the disease, in spite of the absence of any pathological data as yet furnished, is possible from the nature and course of the malady. Most autopsy material has come from the malignant cases, a comparatively small number, which terminate fatally within a short time after infection has taken place. Those patients who have symptoms for many months practically always recover. Hence, an hypothesis may be entertained that the body defenses in such cases have had chance to repair any lesions that may have appeared and existed for a varying period of time without leaving appreciable scars.

That in rare instances there may be intestinal lesions in the acutely sick has been proved. In a report by Lieutenant L. Bousfield[3], published in the *Journal of the Royal Army Medical Corps* for August, 1926, he cites two cases reported by Hughes in a series of sixty-two autopsies that showed "ulceration of the intestine of such a type that the question of enteric could be raised." He also quotes Bruce as describing four ulcers in the small intestine in a single case. He then makes the suggestive observations:

"During the last five months several cases have come under my observation having more or less profuse hemorrhage from the bowel, cases which were, clinically, not typhoid, and whose sera did not react to enteric, though they did to Malta fever. One patient had marked hemorrhage and passed about a pint of blood in thirty-six hours, and in this case there was no question of enteric. He had been ill about three months, and had run a typical Mediterranean fever course, when his abdomen became more distended than usual, tender and painful, and he passed the blood with a large slough, about one inch long and three-quarters of an inch broad. His serum was positive to Malta and negative to enteric fever and no piles were present. He made a satisfactory recovery, and so undeniable proof of ulceration was not obtainable, but the amount of blood passed and the presence of the slough strongly suggest ulceration rather than the leaking of blood from a congested mucosa.

"The abdominal tenderness and distention so frequently met with in enteric is also extremely common in severe Malta fever cases, and this condition, with the constipation or diarrhea or alternative of these two conditions, points to the severity with which the disease attacks the alimentary tract, and I believe that ulceration is more common in these cases than is generally supposed.

"Since the mesenteric glands are often found

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to be enlarged, and the Micrococcus has been recovered from them, it seems probable that Peyer's patches are enlarged and are early attacked by the micro-organism as in enteric, and that these sometimes enlarge and break down into ulcers, as in the case to be described in detail."

The patient whose case he reports died twelve days after admission to the hospital. At autopsy "eight definite ulcers were found in the small intestine between eighteen and thirty-six inches from the ileocecal valve." Pure cultures of Micrococcus melitensis were grown from the spleen and from the mesenteric glands. Bousfield concludes his article with the following observation:

"The clinical appearance of the case and the subsequent bacteriological examination seem to prove that this was probably a Malta fever case presenting ulceration of the small intestine in a situation almost identical with that of typhoid, and I believe the most skilful pathologist would have been unable to state that the ulcers found at the post-mortem were not those of typhoid fever."

That there may be ulceration of the intestine in the chronic cases that eventually recover may be considered possible, as has been stated. In the case about to be reported the evidence that the bowel was decidedly irritated was certainly proven.

CASE REPORT

The patient was a boy twelve years of age. He had fever for some three weeks in June, 1926. No definite diagnosis was made. He was well after this, so far as can be determined, until the early summer of 1928, when, after a period of indefinite ill feeling, he was found to have a fever of 102. Various diagnostic tests were made and typhoid, malaria and tuberculosis were definitely ruled out. Much credit is due Dr. Lewis W. Hill, who had charge of the patient at the time, that a diagnosis of undulant fever was made by agglutination tests. Some time later the organisms were cultured from the blood by Dr. King at Mt. McGregor.

FIG. NO. 1. Six hours after taking barium. The cecum and first portion of ascending colon is faintly outlined. Part of the meal has passed through this portion of bowel and is seen to be in transverse colon. (Film taken August 12.)

Symptomatically there was little that was suggestive except fever, which had persisted for more than a year, with a range that was rarely lower than 101 at night and occasionally went as high as 103, or even 104. His morning temperature was usually normal. This amount of fever never seemed to cause much discomfort, although very little muscular exertion was allowed. In spite of the rest that was enforced, the pulse rate was continuously high and never went below 100 even when the temperature was low. As for localizing symptoms, it had been noted by the mother that the boy had little or no appetite. In fact, even the sight of food would at times cause him to turn pale. Vomiting was rather frequent and he rarely went more than a week or two without a stomach upset. At times, when food was agreeable, he would eat with relish and immediately vomit what he had eaten. Toward the last of the fever period almost no food was agreeable, although the mother constantly catered to his taste. With these symptoms of difficulty with the appetite there was complaint of a full feeling while eating and occasionally real distress, sufficient to cause the patient to put his hand on his abdomen. His bowels always moved once or twice a day with the help of mineral oil. There had never been any diarrhea.

FIG. NO. 2. Seven-hour film. The cecum is almost indistinguishable (arrow). In addition there is filling defect of part of ascending colon and also of hepatic flexure. Nevertheless more food has passed through this portion as noted by lessened amount in small intestine and increased amount in transverse and descending colon and even rectum. (Film taken August 12.)

These symptoms and signs were by no means definite. It has to be admitted that they often occur in cases of fever of long standing in which no especial explanation of their presence is ever given. Nevertheless, they are not unlike those that at times are seen in cases of tuberculosis with ulcerated areas in the intestine, areas that may be easily demonstrated by x-ray, using the method advocated by Brown and Sampson[4]. If any irritable condition were found, it might not only explain the symptoms but also give information of a nidus of infection that might be eliminated by appropriate treatment.

With this hypothesis in mind, a barium meal was given the patient and films were taken at frequent

intervals to study the condition of both stomach and intestines. The films taken from the sixth to the eighth hour were found to indicate a very marked filling defect in the cecum and to a less extent of the ascending colon, especially at the hepatic flexure. These defects can be seen fairly clearly in the illus-

FIG. NO. 3. Twenty-four-hour film taken August 13, 1929. There is practically no barium left.

trations, although of course not so clearly as in the original films. Furthermore, the general irritability of the bowel is shown by the film taken twenty-four hours after ingestion of the opaque meal.

Since the x-ray evidence pointed so strongly to ulcerations in the large intestine, it was decided to put

FIG. NO. 4. Five and one-half-hour film taken October 21, 1929. The cecum is now fairly well filled (arrow). There is a small filling defect near hepatic flexure (arrow).

the patient on intensive heliotherapy. This was done by exposure both to direct sunlight and to the rays of the mercury vapor lamp. In addition, he was given three ounces of tomato juice and one-half ounce of cod liver oil after each meal, according to the recommendations of McConkey and Smith[5]. Treatment was started August 12 and improvement was noted almost immediately. The patient's temperature dropped to normal and stayed there. His color improved and his appetite, which, as stated, had been

FIG. NO. 5. Six and one-half-hour film taken October 21, 1929. There is very little filling defect to be seen.

decidedly fickle, became quite normal, so that he is now able to eat anything with relish without any tendency to vomiting and with absolutely no complaint of pain.

A second barium meal was given on October 21. It can be seen very readily that the filling defects noted on the first films have largely disappeared, although the condition cannot be considered strictly normal

FIG. NO. 6. Twenty-four-hour film taken October 22, 1929. There is much less general irritability of bowel as noted by barium scattered through transverse and descending colon and in rectum.

as yet. It should be further observed that the general intestinal irritability has largely subsided, as shown by the amount of barium remaining in the intestine after twenty-four hours.

A third series of films will be taken in another two months to show any further changes in the condition of the bowels. Meanwhile it should be noted that the abdominal resistance previously mentioned has abated a good deal.

It would be presumptuous to claim that the facts observed in this case prove that all cases of undulant fever have ulcerations in the intestines. All that can be stated is that this case, negative to all laboratory tests except undulant fever, had definite signs of ulceration in the intestine that have improved to a marked extent in two months' time under appropriate treatment, and that with this demonstrable improvement in the lesions the patient has become symptom free.

SUMMARY

It has been observed by several that ulceration occurs in the small intestine in a small proportion of those dying in the acute malignant form of undulant fever.

The chronic case here reported showed definite irritability of the large intestine by x-ray examination and fulfilled the requirements of competent observers (Brown and Sampson) that such irritability should be considered ulcerations.

This case immediately improved and lost all symptoms when treatment was directed to the intestines.

Films taken some two months after the first observation show much lessened intestinal irritability and so, presumptively, a considerable degree of healing of the condition that caused the irritation.

For the sake of those who have the misfortune to be sick with the disease, undulant fever, with its attendant economic waste, it is to be hoped that as easily remedial a condition may be found to be the rule in all instances as it has apparently been in this case.

NOTE: X-ray films of the patient taken on January 18, 1930, showed an improved condition as compared with the films taken on October 21, 1929.

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A CHOLESTEROL AGGLUTINATION REACTION IN TUBERCULOSIS*

BY WILLIAM A. HINTON, M.D.,† AND GENEVIEVE O. STUART†

SERUM reactions have been used to a varying extent in the diagnosis of tuberculosis for more than thirty years. Complement fixation was used to a moderate degree some ten years ago, and even now articles appear descriptive of some special technic with its application to diagnosis. Perhaps the more important are those by Besredka[1], Wassermann[2, 3], Stimson[4], and Wadsworth[5]. However, experience has not yet demonstrated the reliability of complement fixation as a diagnostic test.

References to precipitin reactions for tuberculosis occur as far back as 1904[6], but no practical test has resulted from this phenomenon, unless it be the method recently described by Doan[7]. Technical details were not given, but the method described is a precipitin reaction in which a lipoid extract from tubercle bacilli was used. From the data given, the reaction appears promising but no report of its usefulness in the diagnosis of human tuberculosis has been noticed as yet.

Agglutination of tubercle bacilli by the specific antiserum was first recorded by Arlong[8] in 1898, and later by Koch[9] in 1901. This phenomenon has been applied to the practical diagnosis of tuberculosis by more than twenty workers. Nevertheless, a satisfactory method for clinical purposes has not resulted.

The Vernes[10, 11] reaction, which is non-specific for tuberculosis and which employs a sero-chemical method based on the use of resorcin, has been used to a considerable extent in France. Inasmuch as positive reactions are obtained frequently in other diseases, its use is confined largely to the value it may have in determining "activity" in a known tuberculous individual. Other methods of a similar nature and significance (Daranyi[12] and Matefy[13]) have been described, but none of the methods proposed has had widespread satisfactory usage.

A little more than two years ago, while working on the effect of different bacterial lipoids, when employed instead of tissue extract, in a new serum test for syphilis[14, 15], we observed that the serum of tuberculous patients agglutinated particles of cholesterol suspended in a mixture of glycerol, hypertonic salt solution, and the alcoholic extract of the ether-insoluble residue of an unknown strain of dried tubercle bacilli, while the serum of non-tuberculous individuals had no such effect. During the past few months we have had the opportunity of returning to a study of this phenomenon, and in this communication we wish to report upon further experiments.

On the basis of the observation mentioned above, we obtained three strains of tubercle

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bacilli, H 37, R 1, and BCG, and used them separately for the preparation of our bacillary extract. The strains were supplied by Dr. Leroy U. Gardner of the Trudeau Sanatorium, Dr. Merrill J. King of the Hegeman Memorial Laboratory of the Metropolitan Life Insurance Company, Dr. Esmond R. Long of the Department of Pathology of the University of Chicago, and by the Biological Laboratories of the H. K. Mulford Company. The authors wish to take this opportunity to express their thanks to the donors of these strains.

These organisms were grown on two liquid media of the following composition:

(a) *Sauton's Medium*

	Gms.
Asparagine	4.0
Glycerin	60.0
Citric acid	2.0
Dipotassium phosphate	0.5
Magnesium sulphate	0.5
Iron citrate (ammoniacal)	0.05
Water	1000.0

(b) *Long's Synthetic Liquid Medium*

	Gms.
Asparagine	5.0
Ammonium citrate	5.0
Potassium acid phosphate	3.0
Sodium carbonate (anhydrous)	3.0
Sodium chloride	2.0
Magnesium sulphate	1.0
Ferric ammonium citrate	0.05
Glycerol	50.0
Water	1000.0

The results which we obtained indicate no superiority of one medium over the other for the purpose of our work.

After the three strains of tubercle bacilli were grown in these media for approximately two months, the medium was filtered off, the bacilli washed with distilled water and, while still moist, placed in an incubator at 56° C. for several days for the purpose of killing and drying the organisms. The bacilli were then kept in glass stoppered bottles for an interval of approximately four months (because of the illness of one of us), and then treated, with slight modifications, according to the method described by Neymann and Gager[16] for the preparation of antigens in the Wassermann test. This consisted first of extracting the three strains separately with ether, using one part by weight of the dried bacillary mass to eight volumes of ether (Mallinckrodt, for anaesthesia). The extraction was made four times, and during each extraction shaking for ten minutes was employed. Finally, the ether-insoluble bacillary residue was extracted with five volumes of 95 per cent. alcohol. At frequent intervals during the process of extraction, which lasted for three days, the bottle containing the organisms and alcohol was shaken vigorously. These extractions were made at room temperature. Experiments were made using different proportions of this extract with a 0.7 per cent. solution of cholesterol in absolute ethyl alcohol. For the phenomenon of agglutination to be described, the proportion of one part of the alcoholic extract of the ether-insoluble bacillary residue to nine parts of the 0.7 per cent. alcohol solution of cholesterol gave the optimum results.

Therefore, one part of this mixture was added to two parts of a 5 per cent. aqueous solution of sodium chloride (Merck C.P.) and immediately shaken vigorously. An additional twelve parts of the 5 per cent. sodium chloride solution were then added and the mixture shaken again without delay. Finally, fifteen parts of 50 per cent. glycerine (Arthur H. Thomas, redistilled, neutral) were added and the whole shaken quickly. Following the terminology of our work on syphilis, we refer to the mixture thus obtained as a *glycerinated indicator*, of which we prepared only enough for each day's experiments. One tenth of a c.c., 0.3 of a c.c. and 0.5 of a c.c. of serum were pipetted into three agglutination tubes (10 m.m. in diameter and 100 m.m. long), and to each of these was added 0.5 of a c.c. of the glycerinated indicator previously described. The tubes were then well shaken in the rack, incubated over night at 37° C., and the results noted. The serums from non-tuberculous individuals produced either no change or, at most, a slight scum at the meniscus of the mixture. Serums from known tuberculous individuals produced a definite agglutination of the particles of cholesterol into large clumps, with consequent clearing of the fluid. The latter was almost crystal clear in the strongly positive cases, while weaker reactions were manifest by a moderate degree of clearing and the formation of small or moderate sized clumps of agglutinated cholesterol.

At times, the separate extracts made from strains of R 1, H 37, and BCG have reacted differently with the same serum of tuberculous individuals. For example, R 1 was negative, while both H 37 and BCG were positive.

The following tables show the results obtained:—

TABLE I

CASES FROM BOSTON TUBERCULOSIS SANATORIA

Number of Cases	Sputum	Wassermann or Hinton Test	Agglutination Reaction for Tuberculosis
11	Positive	Negative	Positive
4	Positive	Not done	Positive
2	Positive	Negative	Doubtful
1	Positive	Positive	Positive

TABLE II

CASES FROM BOSTON LYING-IN HOSPITAL

Number of Cases	Sputum	Wassermann or Hinton Test	Agglutination Reaction for Tuberculosis
102	No report	Negative	Negative
2	No report	Negative	Positive
1	No report	Negative	Doubtful
2	No report	Positive	Negative

Table I shows that out of eighteen instances where the sputum showed tubercle bacilli the

agglutination reaction for tuberculosis was positive in sixteen and doubtful in two. Furthermore, the Wassermann or Hinton test was positive in only one instance.

Table II shows that of one hundred and seven presumably non-tuberculous cases from the Boston Lying-In Hospital two showed a positive agglutination reaction for tuberculosis. We were able to learn that tuberculosis had been suspected in one of these cases before the test was made. However, to date we have not been able to obtain a definite clinical report on the case. One would perhaps expect from one to two per cent. positive reactions in presumably non-tuberculous cases. These results appear to us to be very hopeful.

An accurate diagnosis of so-called clinical tuberculosis—that is, tuberculosis which requires treatment—is extremely difficult to make in many cases. In fact, some fifteen years ago Ash[17] found that 11.5 per cent. of accuracy in diagnosis was made in the Boston Consumptives' Hospital, as based on autopsy findings. At that time this institution admitted only advanced cases of the disease and possessed a clinical staff of recognized excellence. From our experience with diagnostic methods for syphilis, extending over many years, we have come to the *definite* conclusion that the availability of any laboratory method as an aid in diagnosis must ultimately rest upon a careful clinical investigation of the cases, which requires organized co-öperation between the clinician and the laboratory. It was difficult for us to effect such a condition here with the material which was readily available. However, our known tuberculous cases have shown a very high incidence of positive reactions, whereas our presumably non-tuberculous cases have shown less than two per cent. of positive reactions. We realize that this is altogether too few cases from which to draw any definite conclusions, but feel that the results warrant a much more extensive investigation which we are about to begin at one of the Boston hospitals which is so organized as to permit of the fullest co-öperation in the study of a limited number of tuberculous persons and a large number in whom tuberculosis is not suspected. Therefore, in this communication we have simply given a record of our laboratory observations which, so far as we know, are novel.

Before concluding, we wish to express our thanks to Dr. Edwin A. Locke and Dr. F. H. Hunt, respectively Chief of Staff and Acting Superintendent of the Boston Sanatorium, and to Dr. Cleaveland Floyd, Physician in Chief of the Tuberculosis Clinics of the Boston Health Department, without whose co-öperation a report of these findings would not have been possible at this time. We also wish to thank Mr. Carl S. Ferguson, who cultivated our strains of tubercle bacilli, and Dr. Ruth M. Easterling, who aided in collecting the bibliography and in the execution of our later experimental work.

Conclusion: A simple method of indicating a change which tuberculosis causes in the serums of infected individuals has been described.

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A CASE OF TULARAEMIA

BY HENRY F. R. WATTS, M.D.*

In the afternoon of January 16, 1930, I first saw R. K., a man forty-eight years old (a moulder by trade), who said he had been sick since December 31, 1929, but had not previously consulted a doctor. His illness seems to have been of sudden onset, and to have been characterized by the usual manifestations of an acute infection, i.e., fever, chills, sweating, headaches, nausea, vomiting, and prostration. As the symptoms gradually subsided, he returned to his job at the foundry, but found that he was not equal to it, so returned home and went to bed.

When I first saw this man, he was in bed, and, apparently, moderately ill, with a tempera-

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ture of 100, pulse 80, respiration 20, and blood pressure of 80/130. His tongue was slightly coated, heart, lungs, abdomen, throat, skin and sclerae were negative. There was a minute sore on the tip of the right index finger, just under the nail. The finger-tip was slightly reddened and swollen. This lesion, he said, made its appearance on January 2. In the right axilla, there was a group of tender, swollen glands, about the size of a man's watch. This he first noticed on January 4. There was also a swollen epitrochlear nodule, which he had not noticed. The skin over these areas was not reddened.

Tularaemia suggested itself as a possible diagnosis, and, upon inquiry, I found that on December 28, he had procured from a local market a western rabbit, brought it home, and dressed it himself (subsequent inquiry established Illinois as the place of origin of this particular rabbit). As far as he knows, he had no cuts or wounds on his fingers or hands when he dressed the rabbit, and did not cut or prick himself during the process of preparation.

Inquiries at the bacteriological laboratories of the Boston Health Department, the Harvard Medical School, and the State Department of Health revealed that there are no local facilities for serological tests for B. tularense, but that the United States Public Health Service at Washington is prepared to make the tests. In accordance with this information, the next day, the seventeenth day of the disease, I sent a blood specimen (as for a Wassermann) to Washington, also a specimen of blood to the local laboratory for a Widal, and did a white count. The white count was 15,000. The Widal was negative.

Washington reported the serum positive for B. tularense in dilution of 1:160; thus confirming the diagnosis of tularaemia.

A second blood specimen, obtained on the twenty-third day of the disease, and sent to Washington, agglutinated B. tularense in dilution of 1:640.

SUBSEQUENT HISTORY: On the twentieth day of the disease, there was rather severe urticaria of from twenty-four to thirty-six hours' duration. The temperature remained moderately elevated with a maximum of 101, from the time I first saw him until the twenty-fourth day of the disease, when it returned to normal. The primary lesion on the finger became dry and apparently healed on that same day. On the twenty-ninth day of the disease, the man was convalescent, but considerably debilitated and apparently some distance from complete restoration to health. The infected glands showed no evidence of breaking down.

According to the records of the Public Health Service at Washington, this is the first case of this disease to be contracted in Massachusetts, and the third case to occur in New England. Of the other two cases, one (reported by Dr. Paul Withington, NEW ENGLAND JOURNAL OF MEDICINE, vol. 201, No. 13, Sept. 26, 1929, pp. 634-635), showed the disease to be contracted in Georgia; the other developed in Rhode Island, from a native wild rabbit.

The United States Government prescribes thirty days' freezing of the carcasses of all wild rabbits intended for human food, with a view to eliminating possible infection. The rabbit which infected my patient was submitted to this *frigid quarantine*, but, apparently, it availed nothing.

WHAT IS A PHYSICAL FITNESS EXAMINATION?

A Report of Findings in a Medical School Group and in a General Group*

BY WILLIAM R. P. EMERSON, M.D.†

PHYSICAL examinations made by physicians are of two kinds—examinations of sick patients to ascertain the causes of their illnesses, and examinations of supposedly well people to detect the beginnings of any pathological conditions. The first of these examinations is the usual medical examination; the second is commonly miscalled a "health examination" and it is assumed that if disease is not found, the patient is well. However, a true health examination should find the causes of impaired health and, since health may be as seriously impaired by a faulty health habit as by a physical defect, such an examination cannot be complete unless causes other than physical defects are determined. Such a health examination I have designated a "physical fitness" examination.

The need of supplementing the usual physical examination by a social examination is shown in the accompanying diagram, which illustrates the relative importance of these two parts of the health examination, depending upon the state of health of the individual examined. Observing the range of health from 100 per cent. to 0 per cent.—that is, from optimum health to severe disease—it will be seen that physical defects assume more importance as the patient is increasingly ill, whereas the higher his state of health, the less important is the physical examination for detecting physical defects and the more important the social examination for determining social defects.

An adequate physical fitness examination must include both a physical examination and a social

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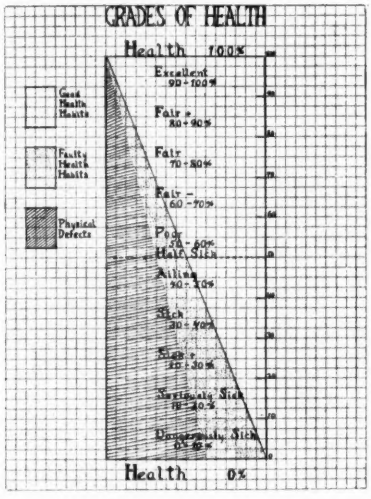
examination. The physical examination must be made with unusual care because, as Theobald Smith says, "the diagnosis of health is more difficult than the diagnosis of any disease." The social examination must evaluate the effect of social causes of impaired health, such as chronic overfatigue, faulty food, faulty food habits and faulty health habits.

The physical part of this examination cannot be made satisfactorily by a single physician because the early detection of physical causes,



The above chart graphically shows that physical defects and faulty health habits increase with the beginning of impaired health coincidently with the decrease in good health habits with the grades of health from "excellent" to "dangerously sick". The grade "50 per cent. health" is applied to those who are able to be out of bed. Health diagnosis is concerned with the field of health above this grade while medical diagnosis is concerned, for the most part, with the field below.

when they begin to impair health but are not severe enough to cause disease, requires the services not only of physicians especially trained in medical and health examinations but also of experts in the various specialties, particularly those of the nose and throat, orthopedics and roentgenology.

The social part of the examination should be made by a physical fitness worker especially trained through practical experience with the weight chart to understand the significance of the following health factors: the toxemias resulting from focal infections, from impaired digestion, from nasopharyngeal obstruction, from overfatigue whether caused by overactivity, by muscle strain, or by worry. The physical fitness worker must also be trained through the weight chart to evaluate the reaction of the body to pain, to nervous strain, to irregularity of living, and to re-evaluate such faulty health habits as the practice of taking no rest during the day, of fast eating, of eating when overtired, working in bad air in overheated rooms, insufficient exercise, lack of sunlight and many other causes the effects of which vary with the individual and with his environment.

The physical fitness (health) examination should, then, be made by a group of examiners as follows:

For the physical examination—

1. Physicians especially trained in making health and medical examinations.
2. Nose and throat specialists, orthopedists, roentgenologists; other specialists to be utilized as needed.

For the social examination—

1. Persons experienced in taking medical and health histories.
2. Physical fitness workers with qualifications as stated above.
3. Dietitians.

The results obtained from examinations made by such groups of medical and social examiners are illustrated as follows:

A. An entire class of 124 first-year students in a Class A medical school.

B. A mixed group of 114 consecutive applicants for health service, 95 per cent. of whom rated their health as average or better.

Physical Defects	*Group A* 124 First-Year Medical Students Number	*Group B* 114 Applicants for Health Service Number
Nasopharyngeal obstructions: diseased tonsils, sinuses, etc.	240	187
Postural defects: curvatures, flat feet, etc.	77	74
Other defects: hernias, varicocele, hyper- and hypotension, osteomyelitis, appendicitis, thyroid disease, etc.	77	186
Obesity: 20% or more above average weight	19	41
Underweight: 7% or more under average weight	41	30
Average number of physical defects per individual	3.7	4.5

The number of recommendations for medical and surgical treatment from 124 medical students examined was 280. The cost of carrying out these recommendations at the usual prices was estimated to be from $6000 to $8000. The average cost per individual was $56.45. The first-year medical class of 134 members, examined in the fall of 1928, showed an average of 3.4 physical defects with 373 medical and surgical recommendations; estimated cost, $7000 to $9000; average cost per individual, $60. Of this group,

Social Defects	*Group A* 124 First-Year Medical Students Number	*Group B* 114 Applicants for Health Service Number
Irregular habits of living, habitual overfatigue, faulty food and food habits, faulty health habits	712	692
Average number of social defects per individual	6.2	5.6

The social defects of the group of 134 students examined in 1928 averaged 6.6 per individual.

whose ages varied from 20 to 30 years, 33% had never had a complete physical examination; 10% never vaccinated; 49% had from 1 to 20 carious teeth; 15% were obese and 32% from 10 to 30 pounds under average weight for height.

The number of recommendations for medical and surgical treatment from 114 applicants for health service examined was 256. The cost of carrying out these recommendations was estimated to be from $5000 to $7000 and the cost per individual at $48.40.

In neither group were recommendations for visual or dental defects included.

These defects were ascertained by checking up each individual's health intelligence; that is, the knowledge actually applied in his own living as related to the twenty health habits listed in the following tables.

Further identification of health habits was made by checking up a 48-hour list of activities with special reference to irregularity, occasion for overfatigue, lack of exercise, sunlight, etc., and by a 48-hour list of food taken with special reference to regular meals, balanced diet, vitamins, fast eating, eating when overtired, etc.

The percentage of faulty health habits of both groups is shown by the following tables:

Group A

Faulty Health Habits	Per Cent.
Insufficient exercise or outdoor sunlight	72
Removable physical defects uncorrected	58
Inadequate vacations or weekly rest	58
No regular rest periods	49
Irregular bedtime	48
Fast eating or washing food down	35
Irregular habits of living	32
Irregular time of bowel movement	31
Candy or sweets between meals	25
Habits injurious to health	24
Worry and fretfulness	24
Overdoing at work or play	20
Finicky about food	16
Irregular mealtimes	15
Habitual overeating or undereating	14
Excessive tea, coffee or tobacco	14
Eating when overtired	13
Uncontrolled likes and dislikes	6
Working in poor air above 68°	4
Sleeping with windows closed	3
Average Health Intelligence Quotient	72

Group B

Faulty Health Habits	Per Cent.
No regular rest periods	81
Insufficient exercise or outdoor sunlight	47
Fast eating or washing food down	46
Worry and fretfulness	45
Eating when overtired	44
Irregular bedtime	43
Irregular time of bowel movement	43
Habitual overeating or undereating	36
Overdoing at work or play	35
Inadequate vacations or weekly rest	28
Irregular mealtimes	27
Candy or sweets between meals	27
Removable physical defects uncorrected	23
Excessive tea, coffee or tobacco	23
Habits injurious to health	19
Working in poor air above 68°	16
Irregular habits of living	15
Uncontrolled likes and dislikes	11
Finicky about food	10
Sleeping with windows closed	6
Average Health Intelligence Quotient	69

SUMMARY

1. The phrase "health examination" has become a misnomer. The term is used commonly to designate a special physical examination made to detect early signs of disease.

2. Social defects may be as serious in their results as physical defects.

3. A thorough physical fitness (health) examination cannot be made by a single physician.

4. The physical fitness examination, while revealing a remarkable amount of medical work necessary for the correction of physical defects, shows a still more remarkably large number of social defects that must be corrected if the individual is to enjoy better than average health.

5. These results demonstrate that an accurate diagnosis is as necessary in the field of health as in the field of medicine and explain, at least in part, the fact that little or no measurable results have been demonstrated from health work as carried on by present customary methods.

6. The work of such physical fitness examinations is, for the most part, the investigation of health habits by lay workers (one hour and thirty minutes). For the physician to do this major part of the work is not economically sound, although he should understand its significance. The purely physical part of the examination is essential to rule out actual disease and thus to determine whether the individual is free to gain (forty minutes).

7. Such physical fitness examinations constitute a health survey that, from a medical point of view, sends the individual to his own physician for necessary medical and surgical work. In several cities throughout the country where this work has been carried on it has been necessary to organize additional medical and surgical clinics to take care of the large amount of corrective work requiring to be done; for example, the removal of diseased adenoids and tonsils, for sinus and deviated septa operations, general surgical and orthopedic work, etc.

8 Results from these two groups of healthy individuals in favorable social conditions illustrate how necessary it is that not only the poor and pupils in the schools receive these examinations but also the general public.

CONCLUSION

The study of these two groups—one from a representative medical student group*, especially interested both in health and disease, the other a general group presumably well—indicates a remarkably large number of both medical and social defects uncorrected, about equally among those who had seen physicians and those who had not. How is this situation to be explained?

Is it not a common experience to find that years of training in medical school, hospital and

*These students were largely college men, the entering class of a Grade A medical school limited to 135 selected from about 1000 applicants.

clinics in the study of disease avail us little in the diagnosis of positive health? Have not the discoveries of new diseases and new forms of treatment led the physician to concentrate on disease, leaving the study of health more and more to lay workers and others without scientific training?

Since high standards of health are of incalculable value as regards the prevention of disease, the economic saving from the cost of sickness and from lowered efficiency, is it not evident that the medical profession should unite with all other available forces for the same efficiency in the health field as that in the field of medicine?

WILLIAM ROLLINS, 1852-1929

A Tribute

ONE of the pioneers in the study of Roentgenology following Professor Roentgen's epoch-making discovery in December 1895, William Rollins became one of the foremost investigators of that period by his contributions to the literature on X-light.

He was born June 19, 1852, son of Sarah Stearns (Patterson) Rollins and John Rodman Rollins, second mayor of Lawrence, Massachusetts, who served his country in the Civil War.

A graduate of the Harvard Dental and Medical Schools, Dr. Rollins practised dentistry, for which he was well fitted by his mechanical tastes and love of technical precision, and achieved distinguished eminence in his profession. His interest in science led him to engage in profound studies in physics and chemistry; he was not moved, however, by a love of knowledge for its own sake, but rather was striving to solve the inherent mysteries in order that others might use the knowledge gained to diminish the suffering of mankind.

He foresaw the far-reaching benefits which Roentgen's discovery was destined to give to medicine—a vision which the years have fully justified. In the new field thus offered, he pursued his investigations with characteristic thoroughness. Numerous reports of his research and experiments appeared in various medical and scientific journals. These reports and experiments he published in book form in 1904 under the title of "Notes on X-light."

His idealism of service, which was his inspiration, is disclosed in the preface to this book: "In these notes are recorded some impressions derived from experiments made after the day's work, as a recreation, yet with the hope of learning to design and construct apparatus for my friend, Dr. F. H. Williams, who has done most to show the importance of X-light in medical diagnosis."

How well his modest hope was fulfilled is attested by the fact that his designs of apparatus, and his axioms as to the manipulation of X-light appear as the work of the master, whose plans and principles are the basis of modern x-ray technique, and the source from which much of the present-day apparatus has been developed.

He visualized not only the future value of the x-ray in medicine and gave directions for its use, but also realized the danger attendant upon the misuse of this powerful agent and prescribed safety methods for the operator and patient.

During the year 1900 he made experiments with radio-active substances which led him to believe in the value of radium as a therapeutic agent and he endeavored to obtain further information in that direction with a view to its use in the treatment of certain diseases. In this case, as in that of the x-rays his belief has been justified.

Dr. Rollins' work was inspired by the ideal of service, directed by vision, and characterized by practicality, precision, and completeness. By this we may know the man. In the hope that others may follow the trail of research he has marked out, to ends useful to mankind, he established a generous foundation at the Smithsonian Institution. A lover of nature, he left lands of shore and forest on Cape Cod as a sanctuary for birds.

Samuel W. Ellsworth.*

MEDICAL HISTORY

ETIOLOGY, PATHOLOGY AND PROGNOSIS ACCORDING TO THE ANCIENT HEBREW LITERATURE

BY SOLOMON R. KAGAN, M.D.†

THE ancient Hebrew literature deals with medicine mainly when it has some connection with religious matters or with rites and ceremonies. The ancient Hebrew Rabbis were teachers, legislators, judges and some of them physicians. They did not compile all the branches of medicine in one treatise, but their dissertations on different medical subjects appeared about 2000 years ago as small parts of the Talmud or in Ecclesiasticus. Much atten-

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tion was given to the study of principles and theories upon the origin of maladies and as to their consequences and prevention; a system was evolved of studying not only diseases and their treatments, but also general hygiene. The scope of their investigations and conclusions was considerably more advanced than was the standard of medical knowledge of that time. The extent and superiority of Talmudic medical knowledge can best be appreciated when compared with the methods of contemporaries, with due regard to the scientific standards of those centuries.

I. ETIOLOGY

In the Talmudic epoch the people in general regarded many diseases as a punishment by God for transgressions. They believed that babies died because of the sinful conduct of the parents; that all epidemics and sickness called for repentance, and that prayer, charity and repentance would accomplish a cure[1]. However, death and disease, according to the Talmud, may follow not only as punishment for sin, but also as a result of external and internal factors[2].

The Babylonian Talmud states that the causes of disease are uncleanliness, cold wind, improper food, excesses, worry, fear, trauma, hereditary weakness and infections. The Palestinian Talmud emphasizes also, that most deaths are caused by cold, heat and neglect[3]. Unhygienic conditions are considered important factors contributing to sickness. Rabbi Samuel said: "Uncleanliness of the head causes infection of the scalp and eyes; uncleanliness of clothes produces discomfort and nervousness; uncleanliness of the body causes skin diseases and disability[4]." Other Rabbis state that, "diseases are prevalent in unclean places; cold and heat are factors of many maladies; a cold in the legs causes intestinal disturbances." Many other ideas of a similar nature are expressed, such as, living in damp places and dwelling where there is insufficient sunshine is injurious to health; draft and sudden changes of temperature are harmful[5]; unripe fruits and contaminated water are dangerous and etiological factors of many severe diseases; impure and indigestible food cause stomach disorders; tapeworms are the result of eating beef that has not been boiled thoroughly; sudden changes in food and environments induce intestinal maladies[6]; more diseases come as a result of overeating than from hunger; excessive mental work as well excessive physical exercises are responsible for weakness and exhaustion; excessive climbing over hills causes weakness of the heart and senility; lack of exercise results in weakness and nervousness; worry and pining wear out the human body and cause senility; three things weaken the human body: fear, travel, and sin; fright causes palpitation of the heart[7]; frequent washing of the hands without drying them thoroughly produces eczema; a trauma to the spinal cord produces limping; softening of the spinal cord causes tremor of the head; a fall may cause injury to the internal organs with fatal results[8]; hemophilia as well as epilepsy are hereditary and prevalent only in certain families;[9] the food, utensils and clothing of persons afflicted with contagious diseases are the sources of the spreading of those diseases[10]. The Talmud speaks of minute organisms and insects as the cause of certain diseases and states that, "there are many germs and insects that are dangerous to health; minute organisms existing everywhere in abundance; if man could see them all, he could not exist."[11]

II. PATHOLOGY

It is remarkable that the Talmudists were the first to state that symptoms of all diseases are merely external manifestations of internal changes in the tissues or organs. The contemporaries of the writers of the Talmud, Hippocrates and his disciples, created a theory that the body contains four humours: blood, phlegm, yellow bile and black bile, the improper proportion or irregular distribution of which causes disease. Later Galen stated that the normal condition of the body depends upon a proper mixture of the four elements—heat, cold, moisture and dryness; he explained all symptoms and all diseases on this theory. The ancient medical schools knew very little about pathology; they did not suspect that structural changes appear in the body of a patient during disease. The ancient Rabbis, however, first propounded the theory that certain changes of tissues and organs result from different diseases.[12]

The Talmud established a religious rule forbidding the eating of the meat of an animal afflicted with a disease which, sooner or later, would have been fatal to the animal. All slaughtered animals were, therefore, thoroughly examined to ascertain the condition of their internal organisms.[13] Much valuable scientific knowledge about diseased structures and explanations of morbid processes were thus made available. The Talmudists determined the pathological changes of the internal organs with regard to color, position, consistency, growths and cavities, as well as their functions. Their knowledge of medicine in general was derived not only from tradition, but also from personal observation and experiments. The authors of the ancient Hebrew literature gave descriptions of the bones, muscles, tendons, glands and internal organs with their histology and topography. The following examples illustrate this. In order to determine the exact number of bones in the human body the disciples of R. Ishmael dissected the body of a woman who was executed as a criminal.[14] By a proper method of experimenting (by boiling) they found the correct number of bones in the skeleton.*

*The greatest Greek physician, Galen, who was the contemporary of Rabbi Jehuda the Holy, studied anatomy both from monkeys and dried bones of human beings that he found on the shore of the Tiber River. Galen dissected animals, but never the human body in a reasonable state of preservation.

In order to determine the total quantity of blood in the body, the prominent physiologist, Welcker, suggested, in 1855, a new method which consisted essentially in washing the blood vessels with water and estimating the amount of hemoglobin in the washings. A similar method of comparison of the color of the blood mixed with water was applied by the Talmudists about 1500 years before. They obtained more accurate results than Welcker.[15] The Talmudists had a number of reagents, composed of seven chemicals, which served as a blood test.[16] They diagnosed, also, some skin diseases on the ground of changes in size, shape, temperature, exudation and color of hair on the sores.[17] They stated that dragging of a leg is due to pathological changes in the spinal cord.[18] The Sage Samuel showed by experiment that the flesh of a cow which was bitten by a snake had undergone pathologic changes.[19] Rabbi Ashi discovered the presence of elastic threads in a case of pulmonary disease. The Rabbis were able to differentiate bleeding from the lungs or other organs on the basis of the color of the blood.[20]

It is significant that Fordyce first reported cases of hemophilia in 1784 in America. About 14 years later Rave reported a similar case in Germany. Hippocrates and Galen do not make any mention of this disease. In the medical literature of the Middle Ages there is no reference made to hemophilia. That condition was considered by many physicians as an evidence that hemophilia did not exist in the Ancient and Middle Ages, but that it is a disease of modern times due to unfavorable social and economic conditions. The Talmudists, however, knew the disease about two thousand years ago. In connection with the rite of circumcision there occurred cases of loss of life due to this practice, traceable to excessive loss of blood. The Rabbis characterized such victims as descendants of a bleeder's family. In such instances, parents, who had lost two sons due to loss of blood, were enjoined from performing this rite to their sons born thereafter. Furthermore, the Talmudists knew the course of hemophilia as well as it is known at the present time. For instance, they knew that this disease is transmitted from mother to son. The women, though not themselves the bleeders, transmit the disease to their males by birth. The Talmudists explained that the cause of the deaths of the bleeders is due not to an inflammation of the wound, but to a lack of viscosity which interferes with the protective property of the clotting of the blood.[21]

The view of the Rabbis in the field of pathology are greatly in conflict with those of the Greeks. They actually harmonize with the theories advanced by modern medical research. However, these findings of the Talmudists did not have an influence upon medical science. The apparent reason was that non-Jewish investigators did not understand the Talmud, while Jewish medical scholars failed to realize its scientific value, considering these conclusions as purely religious in nature. Only of late, at the end of the nineteenth century, due to investigations and experiments on the Continent, has this branch of science attracted any considerable amount of attention.

It is interesting to note that a definite racial trait is evident in the various presentations by the Rabbis on the subjects of pathology and hygiene. This trait is the gift of propheey.—prophecy not only in religious matters, but in medical science and other fields of knowledge as well. The Talmud anticipated all astronomers with the hypothesis that the earth is spherical in form. Through the ages we find the tendency of the Jew to be philosophical. He is not concerned so much with description of symptoms as with their causes, and then with their prevention.[22]

III. PROGNOSIS

With regard to prognosis the Talmud's opinion in many cases agrees with those of modern standards of knowledge. They were able to predict the course and end of certain diseases in accordance with these varying pathological conditions. For instance, they stated that blue and light green discolorations of the lungs are not considered dangerous; black indicated that the lungs had begun to disintegrate; a bright yellow color was an indication of the most fatal condition. Softening of the lungs was mortal; an empty cavity was not dangerous to life. In the case of collapsed lungs in an animal the Talmud gave the following rule: if after they have been immersed in water they can be inflated with air, the flesh of the animal is fit for food; if they cannot be inflated it is unfit.[23]

The Talmud considered that the prognosis of an illness depended upon its cause and location. Internal diseases were more serious than external.[24] The most dangerous were angina pectoris, meningitis, inflammation of the spinal cord, and gall-bladder disease. In animals, however, these diseases had a mild course.[25] Heart trouble was recognized as a grave malady, because the function of all organs depends upon the heart. Other Sages of the Midrash said, "three things are hazardous to man: heart pain, indigestion and poverty; the latter is the worst of the these maladies[26]." Open wounds were treated as a serious disease; cancer was considered dangerous[27]. Eye diseases were also regarded as grave[28]. Perforation of the heart, esophagus, stomach and volvulus were believed to be fatal, as was injury of the spinal cord. Atrophy or abscess of the kidney caused death, but extirpation of the spleen, ablation of the uterus and accumulation of transparent fluid in the kidney were not considered fatal[29]. The Talmud said: "Rather any trouble than sickness of the bowels; rather any pain than pain of the heart; rather any disorder than a disorder of the head; rather any evil than a bad wife."[30]

It is worthy of note that the ancient physicians, Aretaeus and Galen, stated that any disease which arises in the liver is fatal. The Talmud, in opposition, said that if only a part of the liver was removed the animal might recover. This was confirmed by Meister in 1894 when he removed a large part of the liver and the animal recovered.[31]

The ancient Greek physicians claimed that an injury to the trachea or the removal of the spleen is fatal. The Talmud's opinion was contrary to their ideas. The Rabbis said that a cut in the trachea is not a fatal injury; that a wound in the trachea heals quickly, and that the removal of the spleen will not cause death. This is in accordance with the opinion of medical knowledge today.[32]

Galen supposed that the thoracic cavity was filled with air; he believed that from a physiological point of view such a condition is necessary for the normal process of respiration. The Talmudists, however, stated that such a condition is a pathological process, and is fatal. Modern medicine also considers pneumothorax as a dangerous disease which shows a mortality of 70 per cent.[33]

CONCLUSIONS

1. The medical instructions and directions of the Talmud are so positive and so concrete that it is quite evident that the Talmudic physicians were familiar with the manifestations of diseases, especially with etiology and pathology. The medical knowledge of the Talmudists was based not only on hypotheses and traditions, but also on observation, dissection, and experimentation upon human beings and animals. They advanced the science of pathology.

2. The Talmud contains no medical treatises as such. The medical subject is discussed and stated as far as it has a connection with the problem of rites and ceremonies.

3. The Talmudic medical statements have a great value from a historical point of view, being guides to the development of this subject, its different stages and its construction. The general Talmudic considerations are of interest to the history of medicine, showing that many old methods applied by the Talmudists were strikingly like those with which medical science is occupied at the present time.

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DIFFERENCES OF OPINION WITH RESPECT TO MEDICAL EDUCATION AND HOSPITAL SERVICE

There appears to be an important controversy in the faculty of the Medical School of the University of Michigan with respect to the relation of this Medical School to the medical profession of the State of Michigan. One feature of the differences of opinion seems to be in connection with the policy of full time or part time service of the members of the faculty. It is reported that Dean Hugh Cabot is not in favor of permitting members of the faculty to engage in private practice. This is a question which is of interest and opinions are divided.

This controversy seems to be leading to Dr. Cabot's retirement from the position as Dean of the Medical School. The questions involved are of interest to medical education and the general profession and the result of this controversy will be watched with much interest.

RELATION OF CLOTHING TO HEALTH

A bibliography on the relation of clothing to health has been prepared by Ruth Van Deman for the Bureau of Economics of the Department of Agriculture. In this bibliography there are over 1,000 different treatises relating to hygienic aspects of clothing and references include English, French and German books and articles on the subject.

A bibliography of this type should be of considerable interest to those who seriously consider the importance of materials and arrangement of clothing. The harmful effects of tight shoes and the peculiarities of tight fitting dresses are matters which are of interest to those who study the subject of health and clothing.

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 16071

JAUNDICE WHICH HAD BEEN NOTICED ONLY FOR A FEW DAYS

MEDICAL AND SURGICAL DEPARTMENT

An Irish night watchman seventy-five years old was sent to the hospital March 15 by his physician for study of jaundice noticed a few days before admission. The patient himself had not noticed it, and complained chiefly of abdominal distention of three months' duration.

The previous autumn he found that he tired without obvious cause. He was otherwise well until two weeks before admission, when he developed a cough, at first unproductive, during the past few days productive of about a teaspoonful of yellowish sticky sputum in the morning. For two weeks he had had a constant desire to vomit but could not do so. The day before admission for the first time he had pain in the umbilical region radiating to the back and chest, persisting until the next morning and keeping him awake all night. Lying on his left side gave some relief. For the past few days his urination had been frequent, three times at night (night work), and his urine scanty, high-colored or muddy. He had had some difficulty in starting micturition. For three months his abdomen had been steadily increasing in size. He weighed almost 200 pounds. He had lost no weight.

He was a heavy drinker before prohibition, and still drank more or less.

His family history is good except for alcoholism. His first wife had one miscarriage. His second wife had never been pregnant.

His past history is negative except for an operation for carbuncle in the neck and an attack of dull pain in the neck about once a year for the past six years. He lost most of his teeth before he was fifteen and had habitually swallowed his food without chewing.

Clinical examination showed a well nourished man in no discomfort, with moderate icterus of the skin and sclerae. The lungs were clear. Apex impulse of the heart seen and felt 10 centimeters from midsternum, coinciding with the left border of dullness one centimeter outside the midclavicular line. Right border 2 centimeters to the right of midsternum, supracardiac dullness 7 centimeters. A systolic murmur at the apex and the base. Blood pressure 150/90 to 140/75. Radials, brachials and dorsalis pedis arteries palpable. Lungs clear. Abdomen distended, otherwise negative. Rectal examination negative. Pupils normal. Knee jerks and ankle jerks not obtained. Other reflexes normal.

Before operation amount of urine not recorded, specific gravity 1.010 to 1.018, a very slight trace to the slightest possible trace of albumin at two of four examinations, 1 to 3 red cells per high power field at two, bile positive twice, no leukocytes. Blood: hemoglobin 75 per cent; leukocytes, red count, smear and differential count normal. Hinton negative (bile). Stools white or gray at six of nine examinations, yellow at three, guaiac and bile tests negative. March 18 quantitative van den Bergh biphasic reaction 18.75 milligrams bilirubin per 100 cubic centimeters, March 25, 21.38. Liver function: 65 per cent retention. Fasting contents of the stomach: 30 cubic centimeters of colorless mucoid material, no free hydrochloric acid, total acidity 5, guaiac negative. Test meal, 20 cubic centimeters colorless watery fluid, free hydrochloric acid 16, total acidity 21, guaiac negative. Non-protein nitrogen 46. Icteric index 30 to 40.

X-ray examination with a barium enema and a barium meal showed no evidence of organic disease. A plate of the gall bladder, not a Graham test, showed no visible gall stones.

The visiting physician pointed out that the patient made pill-rolling motions with his hands. A surgical consultant advised operation only in case the patient and his daughter understood and wished to take the risk.

April 3 operation was done. The patient had considerable abdominal distention after it, somewhat relieved by poultices and a rectal tube. There was no marked change in the icterus. The stools were brown and contained bile. April 10 a large hematoma, oozing moderately, was discovered in the wound. The stools gave a positive guaiac at several tests. That night there was brisk hemorrhage into the wound. The blood pressure fell to 80 systolic and the pulse rose. The abdomen was very much distended, with clot in the wound and much induration. The next day 300 cubic centimeters of blood was transfused. This was followed by little change in the blood pressure though some decrease in the tendency to bleed. The van den Bergh showed an increase in the jaundice from 21 to 27. The icteric index was over 100, the clotting time about thirty-five minutes. April 14 the patient had hiccup. Sixteen ounces of dark brown material was aspirated from the stomach. Apparently there was no old blood. April 16 there was nosebleed. April 18 the patient died.

CLINICAL DISCUSSION

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

I do not see how we can attach any significance to the fact that he had an attack of dull pain in the neck about once a year.

This history shows that you can live to a good old age without teeth.

NOTES ON THE PHYSICAL EXAMINATION

It is rather surprising that the abdomen was negative except for distention. I expected that they would find dullness there, due to fluid. "Distended" means distended with wind. They would have said distended with fluid if they had thought so.

There is nothing in the urine analysis to which I can hitch any diagnosis.

The liver function test shows of course great damage to the function of that organ.

The non-protein nitrogen is somewhat elevated, but not enough so to make us sure of any renal disease.

The icteric index is very high.

What does pill-rolling motion mean? Parkinson's disease, paralysis agitans, shows itself first in a peculiar tremor of the hands, a motion of the thumb and first finger that suggests pill-rolling. We cannot make a diagnosis of Parkinson's disease on that fact alone. There ought to be something in his face, some rigidity, something in his gait and attitude. But we certainly look for evidence of Parkinson's disease with pill-rolling as a fact.

Operating on a jaundiced patient is always undesirable, and especially at this age and with a condition obviously not good.

DIFFERENTIAL DIAGNOSIS

April 3 operation was done. It is for us, on the basis of what we find, to say what the operation would have been. Apparently there was a short-time jaundice with great diminution of the liver function. Short-time jaundice ordinarily means "catarrhal" jaundice, now usually interpreted as infectious jaundice, which does not go with anything like 65 per cent deficiency of function on the part of the liver. Certainly they would not have operated on him if they had thought it was that. They would not have operated if they had thought he had acute toxic hepatitis (yellow atrophy). I do not see that we have any good evidence of that. They probably thought he had malignant disease or gall stones. We have these two things seriously to consider. They wanted to make sure this was not gall stones. They might assume wrongly that was cancer and hence that there was no use operating on him, and then find nothing but a gall stone after death. I remember that very vividly in one case. I think they made a diagnosis here of malignant disease causing occlusion of the biliary passages, with just a bare possibility of gall stones. For malignant disease causing jaundice the commonest place is the head of the pancreas, pressing on the common duct. But the new growth might be in the bile ducts or gall bladder itself. I should say that pancreatic cancer should be the pre-operative diagnosis and probably was.

PRE-OPERATIVE DIAGNOSIS

Possible neoplasm of the head of the pancreas.

OPERATION

Novocain in spinal fluid. Exploration showed an irregular nodular mass the size of a golf ball in the hepatic ducts just proximal to the junction of the cystic with the common duct. This was firmly fixed to the liver. The common duct was not distended. The pancreas felt normal. The stomach and duodenum were negative. The exploratory hand in the rest of the abdomen failed to find any other primary source. The gall bladder was moderately tense. No stones were made out anywhere. The liver was very much congested and intensely green. The stomach was very mobile. A cholecystogastrostomy was done between the fundus of the gall bladder and a point on the anterior surface of the stomach about an inch and a half from the pylorus. On opening the gall bladder the bile was found to be of the consistency of putty and had to be scooped out before the anastomosis could be finished. The omentum was sewed over the suture line and the wound closed without drainage.

FURTHER DISCUSSION

Exactly where the malignancy is I still do not feel sure. There is no reason to think it is in the head of the pancreas, as I supposed. I do not know where it is, except that it is in the region of the bile ducts.

We do not get any additional information after the operation. We have to say he had a mass, therefore presumably neoplasm, in the region of the bile ducts such as to occlude them. We get that at operation. He then had bleeding, as jaundiced patients often do, and he died of that bleeding and of the operation for cancer.

A STUDENT: Could he have had cirrhosis combined with gall stone or malignancy?

DR. CABOT: They had a good look at the liver and they did not see or feel anything there. Alcoholic cirrhosis certainly is not common without something the surgeon can feel with the liver in his hand. We cannot say cirrhosis so long as we have no evidence of that disease felt by the surgeon. Of course the history is a history that often leads to cirrhosis.

PRE-OPERATIVE DIAGNOSIS (FROM HOSPITAL RECORD)

Possible neoplasm of the head of the pancreas.

DR. RICHARD C. CABOT'S DIAGNOSIS BEFORE OPERATION

Malignant disease of the head of the pancreas, the bile ducts or the gall bladder with occlusion of the biliary passages.

Or a bare possibility of gall stones.

ANATOMIC DIAGNOSES

1. *Primary disease.*

Carcinoma of the common bile duct.

2. *Secondary or terminal lesions.*

Arteriosclerosis.
Operative wound.
Bronchopneumonia.

PATHOLOGIC DISCUSSION

BY TRACY B. MALLORY, M.D.

The carcinoma was found in the bile ducts. It involved both the cystic duct and the common bile duct. It was probably primary in the cystic duct, though that is difficult to say. Anyway the cystic duct was completely occluded beyond any question of doubt and the bile duct apparently so. Obviously the cholecystogastrostomy would not do any good with occlusion of the cystic duct. That is why there was no relief of the jaundice after the operation. The liver was deep green when cut into. The bile ducts were considerably distended and filled with colorless mucinous fluid. As frequently happens in complete biliary obstruction, the liver cells finally fail to secrete any pigment at all, though the ducts continue to secrete mucus.

There were no other findings of any importance. He had a moderately hypertrophied heart, 320 grams, a moderate amount of sclerosis in his coronaries and generalized arteriosclerosis.

DR. CABOT: These two cases* exemplify two of the four common things of which old people die. If you know that a person of seventy died and do not know anything else at all, you can be fairly sure that he died of one of four things. I always think those small groups of things help in diagnosis. This time it certainly would not help in treatment, because there is no treatment for either of these conditions. The four things are:

(1) Vascular lesions of the heart and brain.
(2) Neoplasm.
(3) In the male sex, conditions connected with the prostate.
(4) Terminal infections, of which bronchopneumonia is the commonest.

*See Case 16061, published February 6, 1930.

CASE 16072

A COMPLICATION OF SURGICAL DISEASE OF THE COLON

SURGICAL DEPARTMENT

An American business man sixty-two years old entered September 12 complaining of pain in the lower abdomen slightly to the left of the midline and constipation.

On September 2 while he was sitting quietly at home he was seized with acute pain in the region mentioned. He took a dose of castor oil, which was followed by intense discomfort. A physician could find nothing wrong on examination of the abdomen. He gave an enema. The pain subsided, but the abdomen was tender, sometimes slightly painful. The patient's bowels moved normally until a week later, three days before admission. Then he had another attack of pain. Enemas were given. The pain subsided somewhat, but still troubled him, and the abdominal muscles ached. Until the present illness his bowels had always moved twice a day with perfect regularity. For the past two weeks they had been very constipated, requiring much straining with little result and frequent enemas. In the past year and a half his weight had fallen from 250 pounds to 210, due he thought to dieting.

One brother died of rheumatic heart.

The patient had scarlet fever, earache and discharging ears in childhood and influenza thirty years before admission. He had occasional sore throats. Three years before admission he had a left cervical sympathectomy for angina pectoris with complete relief of pain which he had had for a year and a half.

He was at one time a hard drinker, but now drank nothing but home brewed beer, less than a bottle a day.

Clinical examination showed a large elderly man, almost obese, showing no evidence of recent loss of weight. Apex impulse of the heart felt in the fifth space 11 centimeters to the left of midsternum, corresponding with the left border of dullness 3.5 centimeters outside the midclavicular line. Right border 3 centimeters to the right. Sounds of good quality, loud at the aortic area. A moderately loud systolic murmur at the apex extending up less loud into the pulmonic area. No diastolic heard. Blood pressure 160/85 to 80/60 to 170/100. A few moist râles at the right base. Abdomen tense as if distended, tympanitic in the flanks and elsewhere except in the right lower quadrant, where it was somewhat dull. There was moderate tenderness in both lower quadrants, more on the left. Some soft redundant tissue was felt high in the rectum. Right pupil larger than left; both regular and reacted normally. Diminished knee jerks and ankle jerks. Doubtful Babinski.

Before operation amount of urine not recorded, specific gravity 1.026, occasional leukocytes. Blood not recorded. Hinton and Wassermann tests negative.

X-ray examination with a barium meal showed a large irregular filling defect at the proximal end of the sigmoid colon extending four or five inches along the colon. The adjacent loop of the colon showed a lobulated pressure defect as though there were a large mass surrounding this filling defect of the colon. It was impossible to force sufficient barium through the constricted area to fill the remainder of the colon adequately. The descending colon showed marked dilatation.

September 14 operation was done.

Discussion of the History

BY EDWARD P. RICHARDSON, M.D.

This patient was the most successful result out of eight who had sympathectomy for angina pectoris. It was the only really good result following removal of the left superior cervical ganglion alone. The case is reported in full up to May 11, 1928.* From the point of view of his angina pectoris he was apparently well. His present illness appeared definitely to be a partial intestinal obstruction. This was confirmed by barium enema, which gave a clear-cut picture of an obstructive lesion in the left colon While it is hazardous to give barium by mouth in cases of partial obstruction except in very small amounts, a barium enema is harmless and may clear up the diagnosis. In this case the entire picture was adequately explained by obstructing carcinoma of the sigmoid flexure. The short duration and severity of the obstructive symptoms are not unusual in carcinomas of the left colon. I wish to stress, however, the course of his condition after admission to the hospital.

The patient was a florid six-footer. His abdomen on admission was distended but not extremely tense. He was not vomiting and although partially obstructed appeared to be tolerating his partial obstruction. The next day there was a fair result from enema. Distention continued. He was in moderate but not severe pain. The second morning his condition remained the same, and there was still some distention. Operation did not seem urgent. However, nothing appeared likely to be gained by waiting.

INTERPRETATION OF X-RAY

The findings are those of an extensive organic lesion in the sigmoid, probably carcinoma. The picture could be produced by extensive diverticulitis.

PRE-OPERATIVE DIAGNOSIS

Carcinoma of the sigmoid.

FIRST OPERATION, BY DR. E. P. RICHARDSON

Local novocain. Incision through outer part of rectus muscle, lower right abdomen. The omentum was adherent to the abdominal wall. The cecum was adherent under the omentum. It was greatly distended, tense and on the point of gangrene. It was recognized only by inference. The adhesions were not separated. A purse string suture was put in the bowel, which was incised with the escape of about two quarts of liquid fecal material. A Mixter tube was tied in with two purse string sutures. The wound was packed open.

Further Discussion

The important point was that the cecum was extremely tense and on the point of gangrene. A delay of twelve to twenty-four hours longer might have led to rupture of the cecum with escape of a tremendous amount of fecal material and almost certain death from general peritonitis, whatever might be done.

I have seen three or four similar cases of colonic cancer where the cecum was on the point of rupture or had perforated. This overdistention of the cecum may take place from a carcinomatous stricture of the colon situated anywhere from the hepatic flexure to the rectum. One is accustomed to think that the dangers of occlusion of the colon by carcinoma are those of intestinal obstruction. A danger of necrosis due to interference with the circulation of the cecum from overdistention is usually overlooked. In spite of my knowledge of this possibility, operation was deferred until this catastrophe had almost occurred. There was no reason for taking this chance. Cecostomy would not only allow a thorough preparation of the colon before operation but would provide a vent for escape of gas and feces after radical operation with consequently less strain on the suture line. I believe it is a valuable preliminary in any case of carcinoma of the left colon.

The cecostomy itself was made safer by the presence of adhesions around the cecum. It is very difficult to empty a greatly distended cecum without contamination of the peritoneal cavity. Here when escape of fecal matter occurred it was limited by the adhesions. The peritoneum when the intestines are overdistended in obstruction is very susceptible to peritonitis.

FURTHER HISTORY

The patient was comfortable after operation. His cecostomy drained well and he improved greatly in general condition. He was shortly able to take fluids and food easily.

The second operation was undertaken on September 23 by Dr. Richard H. Miller.

PRE-OPERATIVE DIAGNOSIS

Carcinoma of the sigmoid.

SECOND OPERATION

Left rectus incision. On opening the abdomen a large growth was found involving the upper end of the sigmoid. It was however movable and could be delivered easily through the wound. It was decided to resect this and do an end to end anastomosis, as it was technically simple and in view of the previous cecostomy seemed to be safe. The growth was excised with a good margin of normal bowel wall on each side. The mesentery underlying it was also excised, but not a large amount. No glands were felt here and nothing was felt in the liver. End to end anastomosis was done with two layers of number 0 chromic catgut and extra sutures on the outside to reinforce it. Everything went well. The wound was closed with a cigarette drain.

*Amer. Jour. Med. Sc., 1929, 77, p. 161, Case VIII.

PATHOLOGIC REPORT

The specimen consists of a portion of a large bowel measuring approximately 10 centimeters in length. Near one end there is a completely annular centrally ulcerated neoplasm 4 centimeters in width. The tumor extends through the bowel wall and involves to a slight degree the surrounding fat. The adjacent mucosa shows several small sessile polypoid masses. No lymph glands are found.

On microscopic examination the tumor has the typical appearance of an adenocarcinoma of the large bowel. The glandular arrangement is fairly well preserved and the cells are quite well differentiated, but mitotic figures are frequent, indicating a moderate degree of malignancy but a comparatively rapid rate of growth.

Adenocarcinoma.

FURTHER HISTORY

The patient made a good convalescence until October 11, when he had a sudden circulatory collapse the striking aspects of which were prostration and pallor, with slight duskiness but not an actual cyanosis. He complained of some substernal pain, but this was not a prominent feature, nor was dyspnea. My own belief was that he had a pulmonary embolism. I have twice seen pulmonary embolism without pain and characterized chiefly by profound fall in the systemic blood pressure without obvious dyspnea. A medical consultant reported: "Falling blood pressure, pallor, tachycardia, distant heart sounds. No crackles in bases. No cough. He complains of some steady substernal pain not relieved by amyl nitrite. . . . He should have morphine q.s. at once, and personally I should not dare not give cardiac stimulation. Recommend strophanthin, half a milligram intravenously." A cardiac consultant reported: "I agree. Probably coronary occlusion with circulatory collapse; pulmonary embolism is a possibility but seems to me less likely. I should combine strophanthin ½ milligram (½ cubic centimeter solution in ampoule = ordinary standard) with adrenalin hydrochloride ½ cubic centimeter of 1:1000 solution at once intravenously. The adrenalin may be repeated every hour subcutaneously for four or five doses as needed. Digitalization by mouth should be started after recovery from present state of shock." If coronary occlusion occurred the pain may have been modified by his previous sympathectomy. The patient improved gradually during the day, and the following day seemed in about the same condition as before the accident, although the blood pressure was only 80/60. No pericardial rub could be made out. The murmur noted at admission was still present. Beginning October 17 he had pleural pain in the right anterior chest lasting three days, relieved by strapping. The temperature rose to 100.5°. October 20 he coughed up a little thick blood stained sputum. There was a small area of distant bronchial breathing in the anterior axillary line. The right side of the chest moved less than the left. October 22 the chart was normal again. It continued so until his discharge. The blood pressure rose to 170/100. October 28 he was discharged with orders for rest in bed and digitalis.

On December 5, 1929, he reported at the Out-Patient Department feeling well and looking extremely well. He had no pain, very little dyspnea, an excellent appetite. He had walked from Scollay Square to the hospital without discomfort. Examination showed no evidence of either cardiac or intestinal disease. The operative scars were solid.

DIAGNOSIS

Carcinoma of the sigmoid colon with incipient gangrene of the cecum.

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A HISTORY OF THE MASSACHUSETTS GENERAL HOSPITAL

THE publication, this year, of a new volume on the "History of the Massachusetts General Hospital", by Mrs. Grace W. Myers, Librarian Emeritus, completes the history of that institution up to the year 1900. It is not without interest to look back at the previous histories of the Hospital, for they all contain material of great worth to any physician or historian who is interested in the development of medicine in Massachusetts. The first history, by Mr. N. I. Bowditch, was published in 1851 and contained the story of the growth of the Hospital from its earliest beginnings, with the bequest of William Phillips in 1804, through the middle of the 19th century. The first patient was received September 3, 1821. Mr. Bowditch, who was secretary and trustee of the Hospital for twenty-five years and whose father-in-law, Ebenezer Francis, Esq., was one of the earliest and most active managers, wrote a contemporary estimate of the Hospital during his lifetime. The volume, unfortunately, was privately printed and is not easily obtainable at the present time. One of the outstanding features of Bowditch's history was the illustrations. They consisted of a few superb engravings, including those of Dr. John C. Warren and Dr. James Jackson. In 1872 a second edition of this book was published by Dr. George E. Ellis, continuing the first volume from 1851 to that date. Dr. Ellis also published, in 1899, extracts from these two histories, covering the years 1810 to 1872. In this volume we find in brief form a list of the most important events connected with the Hospital during those years.

Mrs. Myers has continued these histories in a volume written with great care. A feature of her book also is the illustrations taken from photographs. Her history covers the period of the enlargement of the Hospital, which, in 1872, consisted of the Bulfinch Building, the Bigelow Amphitheatre, and, on the same grounds, the Medical College. The general growth of the Hospital, the erection of new buildings, the changes in personnel, the development of the nursing service, and the advancement of medicine by members of the staff are all clearly set forth. The book is of great interest to all physicians who have been on the staff of the Massachusetts General Hospital and, in a wider sense, must appeal to everyone connected with medicine in this country, for it gives a permanent record of the development of one of our great medical institutions.

THE HOUSE OF THE GOOD SAMARITAN WILL PAY ESPECIAL ATTENTION TO THE STUDY OF HEART DISEASE

RHEUMATIC heart disease still remains high in the list of crippling diseases during childhood, and as a cause of death later in life it has few rivals. Dr. Clark[1] asserts that about 75% of all cases of heart disease develop in children under 10 years of age. If this is true, well over half of all heart disease is caused by the rheumatic infections. The etiologic factors in rheumatic fever and chorea are still as obscure as ever; hence, the symptomatic and nursing aspects of treatment remain the sole bulwarks of defence.

This state of affairs persists despite a large amount of data collected in recent years and earnest efforts by many investigators and clinicians to clear up many uncertainties. In New England this type of infection represents the cause of about 40% of all heart disease, and hence, becomes of paramount interest to the profession in this part of the country.

Ten years have furnished us considerable information, and more leads for study, and yet our ability to provide better care for these patients with the least chronic disability to the individual, does not seem to have become greatly augmented. In an effort to widen the scope of its usefulness

[1]Clark, Taliaferro: "Heart Disease a Public Health Problem," Pub. Health Rep., 44:2463 (Oct. 11), 1929.

and to fulfill a greater mission in its work, the Board of Managers of the House of the Good Samaritan has deemed it wise to adopt plans whereby the Hospital may be used for the purpose of observation and study of rheumatic heart disease in its various aspects. This institution occupies a unique position among New England Hospitals, and it is almost alone in the country in the type of work which it is carrying on. While there have always been heart cases cared for here, it has been chiefly during the past nine years that the heart work has been stressed particularly. Fifty-four beds have been available for the care of young people with heart disease. Long hospitalization, so essential to the rehabilitation of this group, is not available in general hospitals, where only acute cases can be cared for. Under the new plan, the House of the Good Samaritan purposes to widen the scope of its usefulness, in an attempt to have its splendid facilities used as wisely as is possible, in an effort to gain definite knowledge concerning the etiology and treatment of individuals suffering from heart disease as a result of the rheumatic infections. It is a worthy venture, and may it avail much good.

MECHANICAL MEDICINE

THE *New York Sun*, on January 4, 1930, published a lengthy editorial on a subject to which we should all be giving some thought in this age of machinery. It is based on an article contributed to the *Medical Journal and Record* for January 1 by Colonel George Fletcher Chandler. Colonel Chandler is known in New York as a medical man, as organizer of the State Police and of the State school for police, as a citizen of public spirit, and more recently as the public investigator of the December riot in Auburn Prison. He is considered as a man with unusual power of distinguishing between essentials and non-essentials; his judgment on any subject of which he has knowledge should be considered with respect.

In this country, according to Colonel Chandler, the rank and file of physicians depend too much on machinery and equipment, and machinery and equipment cannot take the place of individual knowledge, individual skill and individual judgment; in other words growing reliance on mechanical appliances is likely to diminish personal accomplishment. We are in the way of forgetting that the practice of medicine is still an art, although mechanical methods of approach to this art may be justifiably used. In this way we are in danger of falling behind our European brothers who must still rely to a large degree on their own senses and their own judgment, and Americans as a whole, he believes, are getting less effective service than are European peoples.

Standardized mass production is becoming the fetish of the American people, and many of them are coming to believe that the same principles can be applied to health. As witness to this Colonel Chandler cites electrical therapy, treatments with violet rays, windows designed as light filters, radium and x-ray treatments, vegetarianism, dietetics, blood pressure and vaccinations.

Colonel Chandler would probably be himself the last to abandon any of these devices or procedures; it is undoubtedly the routine, thoughtless use of them that he deplores. Certain types of vaccination, such as those designed to prevent typhoid fever, diphtheria and smallpox have been proven of universal value. We must regret, on the other hand, the tendency to vaccinate against pneumonia, influenza, pertussis and a host of diseases simply because they are due to a known or suspected organism or virus.

It is the routine employment of mechanical methods of therapy instead of applying our brain and common sense to the problem which may prove our undoing; it is the routine use of mechanical devices for diagnosis which is stultifying the powers which are innate in us, and the training which was apparently designed to make them available for us.

Should chest x-rays be used to replace auscultation and percussion? Obviously not; the best physician uses this procedure as a justifiable aid to his own keenly developed powers of observation; to confirm a diagnosis or to settle a doubt. Make first your diagnosis, then confirm your decision if necessary by x-ray, metabolism or blood chemistry, and you will be a better physician.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

BASSIN, ALEXANDER L. A.B., Fourth year student, University of Rochester School of Medicine and Dentistry. Address: University of Rochester School of Medicine and Dentistry, Rochester, New York. Associated with him is:

WHITAKER, LESTER R. M.D. Harvard 1923. Assistant in Anatomy and Surgery, Boston University School of Medicine. Second Assistant Visiting Surgeon, Massachusetts Memorial Hospitals. Associate Member, Evans Memorial for Clinical Research and Preventive Medicine. Formerly, National Research Council Fellow. Address: 416 Marlborough Street, Boston. Their subject is: "Pharmacodynamic Effects Upon the Gall-bladder." Page 311.

WOODWARD, SAMUEL B. A.B., M.D. Harvard 1898. President, Massachusetts Medical Society 1916-1919. His subject is: "The Argument of Dr. Woodward on Vaccination Before the Committee on Public Health of the Massachusetts Legislature." Page 318. Address: 58 Pearl Street, Worcester, Mass.

MOSCHCOWITZ, ELI. A.B., M.D. Columbia University 1900. Associate Physician, Mt. Sinai

Hospital, New York City. Consulting Pathologist, Beth Israel Hospital, New York City. His subject is: "The Natural History of Acute Glomerulonephritis." Page 320. Address: 25 West 68th Street, New York City.

GRIFFIN, WALTER A. A.B., M.D. Harvard 1900. Superintendent, Sharon Sanatorium. His subject is: "A Possible Explanation of the Symptoms of Undulant Fever." Page 324. Address: Sharon, Mass.

HINTON, WILLIAM A. B.S., M.D. Harvard 1912. Pathologist and Director of Research, Boston Dispensary. Chief, Wassermann Laboratory, Massachusetts Department of Public Health. Instructor in Bacteriology and Immunology and in Preventive Medicine and Hygiene, Harvard Medical School. Address: 240 Longwood Avenue, Boston. Associated with him is:

STUART, GENEVIEVE O. Assistant Bacteriologist, Wassermann Laboratory, Massachusetts Department of Public Health. Address: 240 Longwood Avenue, Boston. Their subject is: "A Cholesterol Agglutination Reaction in Tuberculosis." Page 327.

WATTS, HENRY F. R. M.D. Harvard 1894. Physician for X-ray Service, Boston Health Department. Roentgenologist, St. Margaret's Hospital and St. Mary's Infant Asylum, Dorchester, Mass. Formerly, Physician, Boston Dispensary, Physician, Convalescent Home of Boston City Hospital. Visiting Physician, Free Home for Consumptives. Instructor in Theory and Practice of Medicine and in Clinical Medicine, Tufts College Medical School. His subject is: "A Case of Tularaemia." Page 329. Address: 6 Monadnock Street, Boston, Mass.

EMERSON, WILLIAM R. P. A.B., M.D. Harvard 1899. Professor of Pediatrics, Tufts College Medical School. Medical Consultant in Physical Fitness at Dartmouth College, Choate, Loomis Institute, and Storm King preparatory schools for boys. President, Nutrition Clinics Incorporated. His subject is: "What is a Physical Fitness Examination?" Page 330. Address: 270 Commonwealth Avenue, Boston.

ELLSWORTH, SAMUEL W. A.B., M.D. Harvard 1896. Assistant Professor of Roentgenology, Boston University School of Medicine. Roentgenologist, Massachusetts Memorial Hospitals. His subject is: "William Rollins, 1852-1929." Page 333. Address: 520 Beacon Street, Boston.

KAGAN, SOLOMON R. Graduate of Odessa Rabbinical Seminary. M.D. Dorpat University 1917. Physio-Therapist to the Bikur Cholim Hospital. His subject is: "Etiology, Pathology and Prognosis According to the Ancient Hebrew Literature." Page 333. Address: 176 Seaver Street, Roxbury, Mass.

MASSACHUSETTS LEGISLATIVE NOTES

HOUSE—No. 1015.

The Commonwealth of Massachusetts

In the Year One Thousand Nine Hundred and Thirty.

An Act to authorize the Boston Dispensary, The Boston Floating Hospital and the Trustees of Tufts College to form an Alliance for the Purpose of Establishing, Maintaining and Operating in Common a Medical Center.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

SECTION 1. The Boston Dispensary, The Boston Floating Hospital and the Trustees of Tufts College, three charitable corporations organized and existing under the laws of Massachusetts, in furtherance of their respective corporate purposes, are hereby authorized to form an alliance for, and otherwise co-öperate in, establishing, maintaining and operating a medical center under the supervision of an administrative board composed of representatives from each of said corporations, and to render mutual services and operate one or more plants in common in connection with such medical center.

SECTION 2. Said corporations are hereby authorized and empowered to enter into such mutual agreement or agreements, to take such other action, and to acquire and hold, either separately or jointly, or as tenants in common, such real and personal property as they may respectively deem necessary or desirable for the accomplishment of the objects set forth in section one; provided, however, that none of said corporations shall exceed the limits imposed by law upon the amount of property which each may acquire and hold, and for the purpose of computing said limits each of said corporations shall, in the absence of an agreement between them to the contrary, be considered as holding one third of any property owned jointly or in common as aforesaid; and said corporations respectively are hereby further authorized and empowered to expend such of their funds, not restricted to other purposes, as they may respectively deem necessary or desirable to accomplish any of the objects set forth in this act.

SECTION 3. Any personal property from time to time held by said corporations as provided in this act, and any real property so held, in so far as such real property shall be occupied by any one or more of said corporations or their officers for the objects set forth in this act, shall be considered for the purposes of taxation as property of the kind described in paragraph Third of section five of chapter fifty-nine of the General Laws, irrespective of whether such property shall be so held separately, jointly or in common.

THE CONTRACEPTIVE BILL

The following amendment to House Bill 384 has been filed:

Sections 20 and 21 of Chapter 272 of the General Laws are hereby amended by inserting at the end and as part of said Section 21 the following:—

> "The provisions of this and of the preceding Section 20 shall not be construed to apply to an instrument, article or prescription used for the protection of health, or for the cure or prevention of disease, by a duly registered physician lawfully practicing, or by the direction or prescription of such physician; nor shall said sections be construed to apply to the treatment and prescriptions given for said purposes by chartered hospitals, or to effect teaching in chartered medical schools or writings in standard medical journals or the publication of standard medical books."

MISCELLANY

SURGICAL PATHOLOGY AND CANCER*

Many years ago William H. Welch said to me that when the microscope was first discovered, practically everyone who looked through this new instrument of precision and described minutely what he saw and published it, was a discoverer. This day has long passed. The new thing today is not the microscope, but the fresh tissue removed in the operating room from the living patient.

Today there are not enough pathologists with the proper training to meet the demands for frozen-section diagnosis in the hospitals of this country. Either there must be provision made for training these special surgical pathologists, or we must speed up research for a differential stain. Cancer is becoming a microscopic disease. Less and less can we depend on the clinical and gross pathological picture. Not only is it becoming a microscopic disease, but the number of early cases in which it is difficult or impossible to distinguish the cancer cell from the abnormal cell that is not yet cancer, has multiplied rapidly.

The diagnosis of pathological lesions through the microscope is largely a matter of memory, and this requires special training, continuous operation. Dr. Broders, from the Mayo Clinic, recently visited me, and I asked him to look at a number of sections difficult to diagnose which were waiting for my inspection, and I noticed he hesitated and took a much longer time than when I worked with him in his own clinic. I asked him what was the matter. He answered: "I am out of practice. I have not seen a section for two weeks."

The clinical picture and the gross pathology so essential years ago are becoming of less and less importance. The significance of this is that in the diagnosis and treatment of cancer in its earliest stages there will be a great demand for pathologists trained in microscopic diagnosis. The American College of Surgeons must use its influence with the medical schools and with the staffs of the great hospitals of this country and help them provide for a pathological team in the operating room as well as for an anaesthetic team, in addition to the essential operating team. It is often possible to combine pathologist and operator in one individual. This seems economically the best ultimate solution, and it makes for a greater career for the pathologist to be an operator, and makes the operator a far more useful individual if he is a pathologist.

*Abstract from editorial by Dr. Joseph C. Bloodgood in *Surgery, Gynecology and Obstetrics*, November, 1929.

BONO DRUG COMPANY SUBJECT OF POSTAL FRAUD ORDER

On December 18, 1929 the Postmaster General issued a fraud order against the Bono Drug Company, Bono Company and their officers and agents as such at New York City and Jersey City, N. J.

The finding of fact, as submitted by Solicitor Donnelly, sets forth that these were trade names used by Maurice Lundin in the sale of various medicinal preparations called "French Pep Tablets" for impotence and allied ailments; "French Pomade" as an aid to "French Pep Tablets", and "Bonol Balsam" as a cure for baldness and falling hair. The enterprise was purchased in 1927 from one B. Kallenberg.

Lundin advertised as follows:

> PEP FOR MEN
>
> Order French Pep Tablets—the most efficient on the market. For men who need Vigor, Pep and Energy. No experiment, but a safe and proven formula. 15 days' extra strength package, $2 postpaid, in plain wrapper (or C. O. D. $2.15). Money-back guarantee. Bono Drug Co., 319 Fuller Building, Jersey City.

The formulas for the preparation being made known, they were submitted together with the advertising and literature to a medical expert who reported that aside from possessing slight, stimulating or tonic properties in selected cases, "French Pep Tablets" were of no medicinal value whereas the "Pomade" was described as having no properties not possessed by other counter-irritants.

The finding of fact stated further:

"According to the statements of the medical expert hereinbefore mentioned, impotence, debility, kidney and bladder troubles are generic terms applicable to a host of symptoms caused by a number of diseases and conditions. Among these diseases and conditions may be enumerated syphilis, gonorrhea, stones and others, the most effective treatment for all of which is well known to the medical profession and in which the Bono preparations are absolutely worthless. The absurdity of attempting to eliminate kidney or bladder stones by use of mildly stimulating tablets taken internally or by the external application of a red pepper (capsicum) salve is manifest.

"The report of the medical expert shows further that 'Bonol Balsam' is composed of drugs long used in hair tonics, and although it has slight antiseptic properties this preparation is declared to be incapa-

ble of either growing hair on bald heads or of stopping falling hair."

It developed that Lundin has been engaged in conducting other dubious schemes through the mails. On January 25, 1923, a fraud order was issued against the Strong Chemical Company at Jersey City, N. J., another "weak-man's" concern conducted by him. Under another name he is engaged in marketing a device called the "Potentator," the sale of which by one Julius Saur, with whom Lundin was formerly associated, was made the basis of a fraud order on March 20, 1928. Under still another name Lundin is engaged in the sale of a device called "The Saddle," also for impotence, which was recently declared obscene by postal officials.

Lundin admitted to inspectors that he is without medical training. He did not refund the purchase price to all dissatisfied customers, despite his representations that he would do so.

According to Lundin the gross receipts of his business amounted to $1000 per month.—*National Better Business Bureau, Inc., Commercial Department.*

McCOY'S LABORATORIES, INC., SUBJECT OF FEDERAL TRADE COMMISSION COMPLAINT

On October 22, 1929, the Federal Trade Commission issued its complaint against McCoy's Laboratories, Inc., a corporation having its principal place of business in the city of New York and engaged in offering for sale and selling a proprietary medicine or preparation known as "McCoy's Tablets," represented to be a weight-producing agent and a health-building tonic when consumed by human beings. For the information of publishers, we quote herewith pertinent allegations of the Commission's complaint:

"PARAGRAPH FOUR: During the times above mentioned and referred to the respondent, through various advertisements, which it caused to be inserted in newspapers, published throughout the United States, and through other advertising media, has made many representations concerning said preparations, such as, amongst others, the following:

'SCRAWNY WOMEN NEED McCOY'S

What is the use of going thru life minus the pounds of good firm flesh that will not only make you feel better, but will make you look better—make you more attractive in face and figure.

The weight producing agents in McCoy's Tablets are all you need to bring about this happy result. Your sunken cheeks fill out—the hollows in chest and neck disappear—you take on flesh where flesh is needed.'

'WANTED
50 THOUSAND SKINNY MEN
To Put on At Least 5 Pounds of Solid Flesh in 30 Days

Then follow other remarkable claims:

"The representations and statements above mentioned and referred to are false and misleading in that the said preparation is not an agent, the probable and reasonable consequences of the use of which is to increase or appreciably affect the weight and strength of human beings who consume it, and have the tendency and capacity to mislead and deceive a substantial part of the purchasing public into the belief that said preparation will increase the weight and strength of purchasers and users thereof."

On January 17, 1930, the Federal Trade Commission advised this Bureau that no answer had been filed by the respondent to this action.—*National Better Business Bureau, Inc., Commercial Department.*

PREVENTION AND CONTROL OF VENEREAL DISEASES

Surgeon General H. S. Cumming in a recent report to Congress states that the control of venereal diseases may still be regarded as one of the most important public health problems in this country today. From studies which have been made it is estimated that in spite of preventive measures which heretofore have been applied and the decrease in prevalence which must have taken place since the World War, there still are constantly under treatment or observation by physicians and in clinics in the United States approximately 474,000 cases of gonorrhea and 643,000 cases of syphilis. It is also estimated that 697,000 cases of gonorrhea and 423,000 cases of syphilis seek treatment for new infections in the course of a year. The economic importance of the loss of earning power and the cost of medical care occasioned by these diseases can be readily appreciated. Moreover, this does not take in account the tragedy of gonorrheal blindness among infants, the serious (often fatal) pelvic infections which occur among innocent women, and the thousands of cases of insanity due to syphilis.

The Public Health Service has continued its efforts to reduce the prevalence of venereal diseases, through co-öperation with State and local health authorities, by the carrying on of educational work and the conducting of research in problems related to the treatment and control of syphilis and gonorrhea. New activities recently undertaken included an investigation of the syphilis problem among rural negroes in the southern States and a campaign for prevention of venereal diseases among seamen in the American merchant marine and other beneficiaries entitled to treatment in the hospitals of the Service.

State health authorities reported a total of 195,559 cases of syphilis and 156,544 cases of gonorrhea for the fiscal year 1929. Clinics operated under State supervision reported 120,315 new patients and 2,128,417 treatments.

The Public Health Service is now co-öperating with the Committee on Research in Syphilis (Inc.), a philanthropic organization for the development and co-ördination of syphilis research, and with the Health Section of the League of Nations, in clinical studies of syphilis. Important progress has been made in special researches carried on during the year.

PLANS FAVORED FOR CO-ORDINATION OF HEALTH UNITS

The House and Senate Committees of Congress have approved the bills which aim to co-ördinate the public health activities of the Government and to establish more specific statutory authority for certain activities of the Public Health Service in order that its procedures may be enhanced.

In regard to the National Institute of Health bill (Senate No. 1171) the object is to promote the health of human beings, to improve their earning capacity, to reduce their living expenses, to increase their happiness and to prolong their lives. It appears to be unselfish in its nature and if enacted into law would be likely to have a beneficial influence on the living conditions in homes throughout the nation. The bill provides for an appropriation of $750,000 for the construction and equipment of additional buildings at the hygienic laboratory of the Public Health Service.

CALL FOR THE ELEVENTH CONVENTION FOR THE REVISION OF THE PHARMACOPŒIA OF THE UNITED STATES OF AMERICA, UNITED STATES PHARMACOPŒIAL CONVENTION (INCORPORATED 1900)

Boston, Mass., January 25, 1930.

In compliance with the provisions of the Constitution and By-Laws of the United States Pharmacopœial Convention, the President of the Convention hereby invites the several bodies, entitled under the Constitution to representation therein, to appoint delegates to the Eleventh Decennial Convention to meet in Washington, D. C., on May 13, 1930, and the attention of all concerned is invited to the following extract from the Constitution and By-Laws:

Chapter I, Article VIII, of the By-Laws of the United States Pharmacopœial Convention provides that the President of the Convention:

> "shall issue on or about the first of May of the year immediately preceding that of the decennial meeting, a notice inviting the several bodies, entitled under the Constitution to representation therein, to send delegates to the next meeting. He shall repeat the notification eight months later, and shall request the medical and pharmaceutical journals of the United States to publish the call for the said meeting."

Article II, Section 1, of the Constitution provides:

> "The members of the United States Pharmacopœial Convention, in addition to the Incorporators and their associates, shall be delegates elected by the following organizations in the manner they shall respectively provide: Incorporated Medical Colleges, and Medical Schools connected with Incorporated Colleges and Universities; Incorporated Colleges of Pharmacy, and Pharmaceutical Schools connected with Incorporated Universities; Incorporated State Medical Associations; Incorporated State Pharmaceutical Associations; the American Medical Association, the American Pharmaceutical Association, The American Chemical Society, the National Association of Retail Druggists, and the National Association of Boards of Pharmacy; *provided that no such organization shall be entitled to representation unless it shall have been incorporated within and shall have been in continuous operation in the United States for at least five years before the time fixed for the decennial meeting of this corporation.*"

Section 2 of the Constitution provides:

> "Delegates appointed by the Surgeon-General of the United States Army, the Surgeon General of the United States Navy, and the Surgeon-General of the United States Public Health Service, the Secretary of Agriculture, the Secretary of Commerce, the Association of Official Agricultural Chemists, the Association of American Dairy, Food and Drug Officials, the National Wholesale Druggists' Association, the National Dental Association, the American Drug Manufacturers' Association, the United States Division of Customs, and the University of Havana, and by the organizations not hereinbefore named which were admitted to representation in the Convention of 1900, shall also be members of the corporation. Each body and each branch of the United States Government above mentioned shall be entitled to send three delegates to the meetings of this corporation. But no such delegates as are provided for in this article shall be members until their credentials shall have been examined and acted upon as provided for by the By-Laws. Delegates admitted as members at any decennial meeting shall continue to be members of the United States Pharmacopœial Convention until their successors shall have been appointed and admitted as delegates to the ensuing Convention and no longer."

REID HUNT, M.D.,
President of the United States Pharmacopœial Convention of 1930.

LYMAN F. KEBLER, M.D.,
Secretary of the United States Pharmacopœial Convention of 1930.
1322 Park Road, N.W.,
Washington, D.C.

CORRESPONDENCE

SHOULD THE REGISTRAR OF MOTOR VEHICLES SPECIFY ANY GROUP FOR THE EXAMINATION OF EYES OF APPLICANTS FOR A LICENSE TO OPERATE MOTOR CARS?

February 6, 1930.

Editor of The NEW ENGLAND JOURNAL OF MEDICINE.

Dear Doctor:

During my visit yesterday at the State House, I was advised by Dr. Bigelow's assistant to write you and explain what I thought regarding the ruling of the Registrar of Motor Vehicles, pertaining to the examination for operator's license. He has made a rule that any applicants not passing the eye test given by his Inspectors will be referred to op-

tometrists for further examination. I have questioned the chief inspector as to why such a ruling was made and he informed me that the Board of Optometry offered their services to the Registrar free of charge. While we do not question the optometrists in their efforts to assist the Registrar in his work, however, we cannot but think that behind this is the fact that every person so referred, if not sold glasses, is impressed with the idea that the State has chosen the optometrists for this work in preference to the oculists.

The optometrists as you know are keen business men and the oculists like most professional men are generally short-sighted from a business standpoint. While we do not question that the examinations are given to the patients free of charge, you can readily see the great amount of advertising that the optometrists in general receive through this method.

We are strictly dispensing opticians and fully believe that the only persons absolutely fitted to take care of defective eyes are the oculists. We hope that we may have your co-öperation in striving to get the Registrar to change his order and allow the persons who are unable to pass the examination to make their own choice as to whom shall examine their eyes. I can readily see why the Registrar in his efforts to increase the efficiency of the drivers in our State would accept the offer given by the optometrists, but he evidently overlooked the fact that, while they would examine the eyes free of charge, they do not state how much they would charge the patient for glasses should they need them.

You, no doubt, in your years of experience have never found a person who could work without pay and neither would you expect the person to do any work without receiving pay for it. If this could be brought forcibly enough to the Registrar's attention, I feel sure that in his fairness he would change his order.

Respectfully yours,
THE HARVEY & LEWIS CO.
J. A. McQueeny, *Treas.*

Worcester, Mass.

A CIRCULAR LETTER TO PERIODICAL PUBLISHERS

ANTI-SWEET ADS AND PURCHASED TESTIMONIALS ABANDONED BY CIGARETTE FIRM

On January 23, 1930, the Federal Trade Commission announced that an unnamed corporation manufacturing and selling cigarettes and other tobacco products had signed a stipulation, which, for the information of publishers we reproduce herewith in toto:

Stipulation of Facts and Agreement to Cease and Desist

False and Misleading Advertising
Stipulation No. 503

Respondent, a corporation, engaged in the manufacture of cigarettes and other tobacco products and in the sale and distribution of the same in interstate commerce, in competition with other corporations, individuals, firms and partnerships likewise engaged, entered into the following stipulation of facts and agreement to cease and desist forever from the alleged unfair methods of competition as set forth therein.

Respondent, as a means of soliciting the sale of and selling its products in interstate commerce, adopted and used numerous newspapers, magazines and other publications having interstate circulation, and wherein the said respondent, and/or its advertising agents or agencies, caused advertisements to be inserted in the aforesaid publications featuring what purported to be the testimonials of famous people who smoke respondent's products and found they protect from irritation. Certain of said testimonials were obtained by respondent for a valuable consideration from the alleged authors thereof. The said advertising matter also contained a testimonial or endorsement purporting to be that of certain actresses in a musical show who were credited with the statement to the effect that through the use of respondent's cigarettes "that's how we stay slender"; when in truth and in fact the said actresses were not cigarette smokers and did not stay slender through smoking of respondent's products. Further, in soliciting the sale of and selling its products in interstate commerce, the respondent caused certain of its advertising matter to be broadcast through a radio station located in a certain state and having a hook-up with radio stations located in other states of the United States, the said advertising matter included a testimonial purporting to be that of a well-known musical comedy star and which, in part, set forth that the alleged author of the testimonial, when making a certain talking picture, smoked that brand of cigarettes manufactured by respondent, and which because of the special treatment employed in the manufacture of said cigarettes, had been freed of all irritants with the result that the smoking of said cigarettes kept the alleged author in good shape and feeling peppy and his voice as clear as a bell in every scene; when in truth and in fact the aforesaid comedy star authorized the aforesaid testimonial and received a consideration for the above statement attributed to him, but which statement he did not prepare, see prior to its use, or sign. In addition to the use of the alleged testimonials, the respondent caused various forms of advertising matter to contain such statements as "Every woman who fears overweight finds keen interest in new-day and common sense ways to keep a slender, fashionable figure", "Women retain slender figures", and "No longer need you face the rigid requirements of harsh dieting methods. Over-weight is banished, etc."; when in truth and in fact health and vigor to men, slender figures to women and reduction of flesh in all cases will not necessarily result from the smoking of respondent's brand of cigarettes.

Respondent, its officers, agents, representatives, servants, and employees, in soliciting the sale of and selling its products in interstate commerce,

agreed to cease and desist from the use in newspapers, magazines, radio talks or other means of any and all testimonials and endorsements unless the same represent and are the genuine, authorized and unbiased opinions of the author or authors or the alleged author or authors thereof, and if a monetary or other consideration has been given for a testimonial, the said respondent shall publish or cause to be published, along with said advertisements, in an equally conspicuous manner, the fact that said testimonials have been paid for. The said respondent, its officers, agents, representatives, servants and employees also agreed to cease and desist from using in advertising matter or in radio talks statements or representations to the effect that "Women retain slender figures", and "Overweight is banished"; or any other statements, representations or words in advertisements or advertising matter circulated in interstate commerce or in radio talks broadcast through hook-ups in various states of the United States and in interstate commerce so as to import or imply or which may have the capacity and tendency to mislead or deceive the purchasing public into the belief that the smoking of respondent's cigarettes will bring slender figures and cause the reduction of flesh in all cases.

Respondent also agreed that if it should ever resume or indulge in any of the practices in question, this said stipulation as to the facts may be used in evidence against it in the trial of the complaint which the Commission may issue.

NATIONAL BETTER BUSINESS BUREAU, INC.,
Commercial Department.

INTERNATIONAL HYGIENE CONGRESSES

A LETTER TO THE SECRETARY OF THE MASSACHUSETTS MEDICAL SOCIETY

January 31, 1930.

Dr. Burrage,
Sec., Mass. Medical Society,
182 Walnut St.,
Brookline, Mass.

Dear Sir:

The American Commission of the International Hygiene Congresses formally invites your organization to be represented at the world health sessions to be held in Dresden May 15-September 30, 1930.

While circumstances may well make it difficult for a large number of your members to plan on a journey to Europe this summer, please bear in mind that the importance of the Dresden meeting is such that an opportunity for the multitudinous contacts it affords may not be created again for several decades.

As members of the American Delegation, your representatives will meet with over 200 scientific associations which have made their annual conventions converge in Dresden this summer. They will meet with the delegates of the League of Nations and twenty foreign governments whose participation in the Dresden meeting has been specified by legislative enactment. They will meet with the health authorities of the principal cities in the U. S. and Europe, including the health authorities of every state and city in the German Reich.

En route to Dresden by sea, they will participate in a post-graduate course of round table discussions preparing them to react quickly and intelligently to the kaleidoscope of events awaiting them at their destination.

En route to Dresden and return by land, they will be received by government dignitaries and affiliated scientific associations in Liverpool, London, Brussels, Cologne, Dusseldorf, Berlin, Potsdam, Prague, Vienna, Salzburg, Munich, Oberammergau, Lucerne, Montreux, Geneva and Paris.

Everywhere they go European doors will be open to them as accredited delegates of your association, which are regularly closed to ordinary tourists. In every city they visit the program of professional contacts, scientific meetings, clinical demonstrations and official receptions will be dovetailed with a generous program of social relaxation and sightseeing.

The economies effected through syndication of the purchasing power of our delegation, plus the special consideration accorded our representative status by transportation systems, has made it possible to cover all expenses of a membership in the delegation for an inclusive price of $774.

This sum covers all costs of a more than seven weeks' itinerary—all costs of first class accommodations on crack cabin steamers of the International Mercantile Marine—all transportation by boat and train in Europe—all cost of accommodations in better class hotels—all meals—all sightseeing—all transportation of baggage—the cost of guides and personal conduction—even such miscellaneous items as tips and entrance fees to public museums. It also includes the complete cost of all special post-graduate courses and clinical demonstrations associated with the visitation.

Enclosed you will find an organization identification card. If your association desires representation in the official American Delegation to the International Hygiene Congresses in Dresden this summer, please return this card to us as quickly as possible. It will be countersigned by the Executive Council of the Delegation and returned to you as authorization for the appropriate announcements which you will wish to make to the membership of your association.

Very sincerely yours,
DR. R. WOERNER,
Executive Secretary American Delegation.

OUTLINE OF AMERICAN DELEGATION'S ITINERARY

Saturday, June 14—Leave New York per S.S. "Adriatic."
Monday, June 23—Arrive Liverpool.
Tuesday, June 24—Chester and Shakespeare Country.
Wednesday, June 25-28—London.
Sunday, June 29—Brussels.
Tuesday, July 1—Cologne.
Wednesday, July 2—Berlin.

Saturday, July 5—Dresden.
Wednesday, July 9—Prague.
Thursday, July 10—Vienna.
Saturday, July 12—Munich.
Tuesday, July 15—Oberammergau.
Thursday, July 17—Lucerne.
Friday, July 18—Montreux.
Saturday, July 19—Geneva.
Monday, July 21—Paris.
Saturday, July 26—Cherbourg, embark on the S.S. "Lapland."
Sunday, August 3—Arrive New York.

February 8, 1930.

Dr. R. Woerner, Executive Secretary
International Hygiene Congresses
American Headquarters

Dear Doctor,

This is to acknowledge the receipt today of your polite invitation to the Massachusetts Medical Society to be represented at the world health sessions of the International Hygiene Congresses, to be held in Dresden, Germany, May 15, to September 30, 1930.

Your invitation although dated January 31 was not mailed until February 7. The stated meeting of our "Council" the governing body of our society, was held on February 5. There will not be another stated meeting until June 17, 1930, therefore your invitation cannot be brought before the Council previous to the beginning of the Congresses. However, I am sending your letter to the office of the official organ of the society, the NEW ENGLAND JOURNAL OF MEDICINE, 165 Newbury Street, Boston, that its contents may be brought to the attention of the Fellows. The NEW ENGLAND JOURNAL OF MEDICINE is published every Thursday and is sent to the entire paid up membership of our society, now about 4256 Fellows.

Trusting that many Fellows may take advantage of the attractive opportunities offered, I am

Respectfully yours,
WALTER L. BURRAGE, *Secretary.*

OBITUARY

DR. CHARLES T. O'BRIEN

Dr. Charles T. O'Brien died at his home at 20 Church Avenue, Woburn, after a brief illness, on January 31, 1930. He had been a member of the Society in the Middlesex East District since 1903

Born in Woburn 56 years ago, he attended the public schools of that city and later was a student at Boston College, from which he graduated in 1898. His medical education was received at Harvard, in the four years following and after an interneship at St. Vincent's Hospital in Worcester he began practice in his home town, where he has been ever since.

He has several times been City Physician of Woburn. He was a member of the Woburn Country Club and an ardent golfer. Of late years he has been a member of the staff of the Employers Liability and Assurance Company of Boston and has limited his practice to that work.

He was the son of the late William and Bridget (nee Lynch) O'Brien and is survived by one sister, Mrs. John Lyman, and one brother, Mr. William A. O'Brien, both of Woburn.

ALLAN R. CUNNINGHAM,
Secretary Middlesex East District Medical Society.

RECENT DEATHS

CILLEY—DR. DANIEL PLUMMER CILLEY, a Fellow of the Massachusetts Medical Society, died at his home in Southbridge January 22, 1930, aged 75.

Dr. Cilley was a graduate in medicine at the University of Vermont in 1885 and settled in Westborough, Massachusetts, joining the state medical society in 1888. Last year he moved to Southbridge. He was a Fellow of the American Medical Association.

KIRBY—DR. JAMES CALEB KIRBY, a member of The New England Society of Otology and Laryngology, died after an illness of two weeks with pneumonia at the Massachusetts General Hospital, February 3, 1930, at the age of 36.

He was a graduate of Tufts College Medical School in the class of 1917, studied at Bellevue Hospital in New York and at the Massachusetts General Hospital and Massachusetts Eye and Ear Infirmary. He is survived by his widow, who was Elizabeth Laird of Peabody, and by a daughter.

GRADY—DR. THOMAS HENRY GRADY, of Clinton, died in that town, January 20, 1930 at the age of 52 years. He was a graduate of Baltimore Medical College in 1901 and joined the Massachusetts Medical Society in 1915, being then in practice in Clinton. He was a Fellow of the American Medical Association.

NEWS ITEMS

DR. EDWARD J. MARSHALL, Tufts Medical 1928, has announced the opening of his office on February 1, at 270 Commonwealth Avenue.

DR. FLOYD R. STAMP, Tufts Medical 1912, has been made Director of Public Service and Safety for the city of Alliance, Ohio.

DR. AND MRS. CHENERY ON MONTH'S TRIP—Dr. and Mrs. William E. Chenery of 377 Commonwealth avenue have left Boston for a month's trip to Mexico, Havana, and points of interest.

They will go by way of Washington, Atlanta, San Antonio, New Orleans and Mexico City where Dr. and Mrs. Chenery will leave the party registering at the St. Regis Hotel, later going to Havana and returning to Boston by another route.

Dr. Chenery is Professor of Laryngology at Tufts Medical School.

DR. WILINSKY CONTINUES AS DIRECTOR OF THE BETH ISRAEL HOSPITAL—The announcement of Dr. Wilinsky's appointment to the directorship of the Health Units and Child Hygiene program of the Boston City Health Department led to the fear on the part of some that he would resign as Director of Beth Israel Hospital. This fear is however unfounded for Dr. Wilinsky will continue to direct the affairs of the Beth Israel Hospital. Both positions need his controlling influence. Either would be enough for an ordinary person to carry on, but, there seems to be no task too large for this devoted servant to the public health interest of this community.

NOTICES

REMOVAL

Robert W. Buck, M.D., announces the removal of his office from 475 Commonwealth Avenue, Boston, to 270 Commonwealth Avenue.

APPOINTMENT OF DR. ELMA CARR

Dr. Elma Carr, George Washington Medical School, 1928, is now assistant to Dr. William Earl Clark of Washington, D. C. Dr. Carr served as interne at the New England Hospital for Women and Children in 1928-29 and was camp physician for the Camp Fire Girls at Camp Kiwanis, South Hanson, during the summer of 1929.

UNITED STATES CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces the following open competitive examinations:

Occupational Therapy Aide (Arts and Crafts)
Occupational Therapy Aide (Trades and Industries)
Occupational Therapy Pupil Aide (Trades and Industries)

Applications for the above-named positions must be on file with the Civil Service Commission at Washington, D. C., not later than March 12.

The examinations are to fill vacancies in hospitals of the United States Veterans' Bureau throughout the country.

Medical Officer
Associate Medical Officer
Assistant Medical Officer

Applications for the above-named positions will be rated as received by the Civil Service Commission at Washington, D. C., until June 30.

The examinations are to fill vacancies in hospitals of the Veterans' Bureau, the Public Health Service, the Indian Service, and in other establishments of the Federal classified service throughout the United States.

Competitors will not be required to report for examination at any place, but will be rated on their education, training, and experience.

Full information may be obtained from the United States Civil Service Commission at Washington, D. C., or the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city.

UNIVERSITY EXTENSION COURSE ON THE PREVENTIVE MANAGEMENT AND MENTAL HYGIENE FOR EXECUTIVES

Gardner Auditorium, State House, Boston.
Monday, February 24, 1930, at 8 P. M.
Eight lectures.

Charge: $4 for auditors, $5 for credit students.

Course leader: Henry B. Elkind, Medical Director, Massachusetts Society for Mental Hygiene.

This course is designed for executives in all fields—for men and women holding supervisory positions in business and industry, for foremen, supervisors, employment managers, welfare directors, nurses in industrial concerns, and for all who have as their duty the direction of others. In short, it is a course in mental hygiene for "the boss" and his associates. It is intended to give insight into the newest methods in management and personnel work. Personal hygiene for the individual will also be considered. The lecturers are experts from the fields of medicine and hygiene as well as from the fields of industry and business. The course has the endorsements of the Massachusetts Society for Mental Hygiene, the Retail Trade Board of Boston, and the Associated Industries of Massachusetts. A list of the subjects and speakers follows:

February 24—Preventive Management: Next Steps in Industrial Relations. Meyer Bloomfield, Consultant in Industrial Relations, New York City.

March 3—Psychiatry in Industry. Dr. V. V. Anderson, Director of the Department of Employment, Psychiatry and Psychology, and Personnel of R. H. Macy and Company, New York City, and author of "Psychiatry in Industry."

March 10—Human Nature and Management. Ordway Tead, Lecturer in Personnel Administration, Columbia University, and author of "Human Nature and Management."

March 17—The Psychology of Happiness. Walter B. Pitkin, Professor of Journalism, Columbia University, and author of "The Psychology of Happiness."

March 24—Mental Pitfalls of Leadership. Dr. Harlow S. Persons, Managing Director, Taylor Society, New York City.

March 31—Fatigue, Worry, and "The Blues." Dr. Karl M. Bowman, Assistant Professor of Psychiatry, Harvard Medical School.

April 7—Normal and Abnormal Fear. Dr. Abraham Myerson, Professor of Neurology, Tufts College Medical School.

April 14—The Minor Executive and Mental Hygiene. Eliot Dunlap Smith, Professor of Industrial Engineering, Yale University, and author of "Psychology for Executives."

Enrollments will be taken at the first meeting.

ALLEGED MISCONDUCT OF DR. J. J. HOBAN

The report is current that Dr. James J. Hoban of Lowell has been arrested on a warrant issued by the Superior Court in which it is alleged that an illegal operation was performed by him.

This action followed the death of a young woman in the St. John's Hospital, Lowell, on January 2, 1930.

REPORTS AND NOTICES OF MEETINGS

NEW ENGLAND HEART ASSOCIATION

A meeting of the New England Heart Association was held in the Peter Bent Brigham Hospital Amphitheatre on the evening of January 16, 1930, at 8:00 o'clock. Dr. Henry Jackson presided and introduced the speakers.

The first paper on "The Psychoneurotic Problem in Heart Disease" was presented by Dr. John A. P. Millet of Stockbridge, Mass. Dr. Millet defined a psychoneurosis as a disturbance of bodily and psychic function resulting from an incomplete adaptation to the environment. One of the fundamental emotions of man is that of security. If this is threatened, he goes through doubt, fear and obsessions to anxiety. The heart bears a special relation to this condition because not only has it been long thought of as the source of life, but any disturbance in its function is soon noticed.

The problem of heart disease presents three aspects: diagnosis, prognosis, and treatment. In diagnosis and prognosis the history of the case is very important. The attitude of the patient is important in prognosis. If the condition is functional, the description by the patient is often more vivid. In estimating the function of the heart in response to tests, it must be remembered that the response to exercise varies and the results cannot be evaluated per se. Be definite in prognosis, emphasized Dr. Millet, because anxiety is very important for the patient. He must be told not only of his definite condition, but the physiology of it, and reports of cured cases are often very helpful.

There are several important points in treatment. One must be careful not to allow too much exercise, while on the other hand too much restriction causes anxiety on the part of the patient. Reassurance repeated often is very helpful, but must be supported by definite progress in amelioration of symptoms. It is important to re-ëducate the patient's outlook in the light of the new findings, in the light of the physiology of his emotions, and in the light of his environment. Finally, the cardiologist must be positive in his statements, because an uncertainty on his part is immediately reflected tenfold in his patient's anxiety. In Dr. Millet's experience there are two groups which stand out among the cardiac neuroses. The first group is comprised of the young individuals with a rheumatic childhood. The care necessary in their earlier days and their enforced absence from the normal activities of early childhood form a fitting background for their neuroses. The second group includes those middle-aged persons with arteriosclerosis, some hypertension, and beginning cardiac failure. Most of these patients have symptoms not directly referable to the heart, but anxiety as to their future well-being is an outstanding sign.

In conclusion, Dr. Millet emphasized the following points: (1) the psychoneurotic problem in heart disease is important; (2) psychotherapy and re-ëducation is necessary in treatment; (3) the treatment is specialized, being psychiatric; (4) the psychoneurotic aspect is probably more important in many cases than the organic lesion; (5) the co-öperation of the practitioner and the cardiologist is important.

The second paper was presented by Dr. James B. Ayer on "Circulatory Disturbances in Organic Neurological Conditions." Dr. Ayer estimated that half of the patients who consult a neurologist suffer from intracranial circulatory disturbances. Because of this the understanding of vascular reactions is important. There are still many unsolved problems.

One of the problems is that of end arteries in the brain. Complete hemiplegias often recover remarkably. Add to this the results of injection experiments and other observations, and the idea now is that there is much deep anastomosis of vessels. Another problem is that of the vasomotor control of cerebral circulation. It was formerly thought there was none, but now it is thought that there is such a control, especially in pial vessels, and to a less striking degree in the deeper circulation. A third problem is the relation of the cerebrovascular and cerebrospinal circulations. There is no mechanical relationship between arterial pressure and cerebrospinal fluid tension, since in hypertension the spinal fluid pressure is normal. The spinal fluid pressure on the other hand is consistently a little higher than the venous pressure. Again, the brain may be contracted and expanded by the use of hyper- and hypotonic solutions. The vascular reaction is not understood.

A fourth problem is what controls the locus of cerebral hemorrhage. It was taught that a vessel gets brittle and breaks. It is now thought that this only occurs in arteries or areas where there has been pre-ëxisting disease. Another problem is what determines the type of hemorrhage. The traumatic type is either petechial or large. Recovery depends on the size of the hemorrhage. Some epileptics show the pathology of old petechial hemorrhages. Post-traumatic headaches which persist for years probably have petechial hemorrhages. Late recurrent hemorrhages are another type, the common cause for which is aneurysm of the cerebral vessels. It is important to differentiate chronic

subdural hematoma because this is an operative condition. All or most of these are late sequelae of trauma. A final problem is that of sympathetic control of peripheral blood vessels.

Dr. Ayer then discussed some cases which illustrated the differential between brain tumor, brain abscess, and cerebral hemorrhage. He pointed out that there is a condition of cerebral ischaemia resulting from relative hypotension in cerebral arteriosclerosis.

The papers were followed by discussion from Dr. O'Hare, Dr. White, and Dr. Jackson.

ESSEX NORTH DISTRICT MEDICAL SOCIETY

The 88th Semi-Annual meeting of this Society was held in Centre Church vestries, Main Street, Haverhill, on Wednesday, January 8, 1930, with the President, Roland L. Toppan, M.D., of Newburyport, in the chair.

A delicious chicken dinner was served at 12:40 P.M. by the Ladies' Society of the Centre Church.

At the business session, suitable action was taken upon written memorials relating to the memory of five members recently deceased.

A letter was read from the Council on Medical Education and Hospitals of the American Medical Association relating to the use of registered hospitals by irregular practitioners and deprecating such use; and further relating to the importance of confining the clinical meetings of hospital staffs to matters included within the four walls of the hospital, and the progress of cases; and employing the papers of visiting physicians in medical society meetings only.

Upon invitation of the Trustees and Medical Staff of the Anna Jaques Hospital of Newburyport it was voted to hold the Annual meeting of 1930 at that institution.

The clinical program was as follows:

The Section of Obstetrics and Gynecology of the Massachusetts Medical Society, through its chairman, Louis E. Phaneuf, M.D., of Boston and three other of the members, presented five interesting motion picture reels upon Face Presentation, and upon Breech Extractions, and related procedures (one hour).

Frederick C. Irving, M.D., of Boston, Assistant Professor of Obstetrics at Harvard University Medical School talked in an instructive manner on Caesarean Section (30 minutes).

The discussion of these subjects was opened by Thos. W. Murphy, M.D., of Lawrence and Carleton W. Bullard, M.D., of Newburyport.

The remarks, questions and discussion of both parts of the clinical program were active, interesting and of value to the eighty physicians in attendance, and was participated in generally.

This meeting was the largest Semi-Annual meeting in the history of this Society.

J. Forrest Burnham, *Secretary.*

THE HARVARD MEDICAL SOCIETY

A meeting of the Harvard Medical Society was held on Tuesday evening, January 28, 1930 at 8:15 o'clock in the Peter Bent Brigham Hospital. After the presentation of cases Dr. Tracy Putnam introduced Dr. John Beattie, Assistant Professor of Anatomy at McGill University, who spoke on the "Hypothalamus and Its Relation to the Sympathetic Nervous System."

The first case was presented by Dr. Henderson. The patient was a 27-year-old engineer who complained of a very urgent desire to sleep. When he was 12 years old, he had an accident when a piece of dynamite exploded in his hand. He was able to get up and go away without after-effects. There was nothing in his past history which suggested encephalitis. When he was 16, he began to have attacks of somnolence, coming on once or twice a day. They occurred at no particular time and he had no power to resist them. They lasted from two minutes to three hours, the average time being 5-10 minutes. Between attacks he was quite well. He had never noticed any increase in weight or that he drank or passed a lot of water. Physical examination and x-rays were entirely negative. The diagnosis of narcolepsy was made, probably due to his accident which produced a slight hemorrhage in the region of the third ventricle.

The second case was presented by Dr. Oldberg. The patient was a 56-year-old married woman who entered the hospital complaining of pain in the back of the head extending down the neck, of a year's duration, and associated with temporary loss of vision. For 4-5 years her husband had noticed slight mental changes, and she had recently developed light hallucinations in her left eye. Physical examination showed considerable impairment of the olfactory sense, a slightly choked right fundus, and some atrophy in the left. X-rays were negative, but ventriculograms showed a deformed left ventricle. Operation revealed a very vascular meningioma of the frontal lobe. During the operation she was given two doses of morphine to quiet her. After the operation she did not become conscious and had to be nasal fed for two days. She was presented in a stage of semi-sleep in which she had been for two weeks.

The beginning of this research, said Dr. Beattie, was an investigation of the effects of chloroform anaesthesia on the glycogen content of the heart. By decerebrating the experimental cat, it was found that the cardiac arhythmia produced by the chloroform disappeared. This arhythmia they had regarded as the precursor of ventricular fibrillation. They then tried to prove two things: that the discharge of sympathetic impulses on the heart mainly by the action of adrenalin was the cause of the arhythmia; and that there exists a higher place than Sherrington's spinal centre for the control of the heart.

Experiments showed that in the decerebrated animal adrenalin is the only way to cause an arhythmia of the heart. If the stellate ganglion is paralyzed by nicotine, the heart beat is normal. Now, if the adrenals are extirpated and the posterior roots of the spinal nerves going to the heart are cut, the arhythmia is accentuated. If the anterior roots

are then cut, the arhythmia disappears, showing that there are no afferent impulses from the heart to the spinal cord. Death from chloroform anaesthesia is thus thought to be due to the increase in adrenalin in the circulation which throws the ventricle into fibrillation. If all the spinal roots are cut except the anterior root of the second thoracic nerve, the heart beat remains relatively normal; when that is cut the control of the higher centres is gone and ventricular fibrillation results. If the cat's brain is sectioned, no effect is noted on the adrenalin secretion until the hypothalamus is cut; then the arhythmia disappears, showing the control of the hypothalamus on reflex adrenalin secretion. Stab wounds as well as electrical stimulation of the hypothalamus stopped or started the arhythmia. If the degenerating nerve fibres were followed it was found that projection fibres of the hypothalamus passed not only down the cord but to part of the brain with sympathetic connections.

These and other experiments were described.

He made several deductions from his work. He concluded that the whole maintenance of internal equilibrium has a hypothalamic centre. Bilateral section of the hypothalamus produces homolateral pupillary disturbances, which is the only homolateral result seen. Dr. Beattie cautions against over-loading the hypothalamus with functions just as the corpus striatum was over-loaded when its place in the nervous mechanism was first studied. He divides the hypothalamus into an anterior and a posterior part. The posterior part has projection fibres running over the red nucleus, through the midbrain and medulla, down the spinal cord. The anterior has no descending fibres, its influence being exerted by acting on the posterior fibres and by direct action on the pituitary body. If this part is destroyed, emotional and excessive reactions are obtained, like the thalamic cat of Magnus, due to the uncontrolled action of the posterior part. Dr. Beattie calls the posterior part the sensorimotor cortex of the sympathetic system.

This was an unusual presentation of a new and difficult subject. Its appreciation was evidenced by prolonged applause.

GREATER BOSTON MEDICAL SOCIETY

A meeting of the Greater Boston Medical Society was held on Tuesday, February 4, 1930, at 8:15, at the Beth Israel Hospital. A paper on "The Consideration of the Present Day Problems in Diabetes Mellitus" was read by Dr. Albert A. Epstein of New York. The paper was accompanied by interesting lantern slides, and was discussed by Dr. Elliott P. Joslin, Dr. Henry Baker, and Dr. Abraham Rudy.

The next meeting of the Society will take place on March 4.

LOUIS SILVER, M.D., *Secretary.*

NEW ENGLAND PHYSICAL THERAPY SOCIETY

At meetings held respectively on January 20, 1930, and January 21, 1930, the New England Section of the American Academy of Physio-therapy and the New England Association for Physical Therapeutics voted to dissolve for the purpose of forming a new organization to be known as the NEW ENGLAND PHYSICAL THERAPY SOCIETY.

On January 29, 1930, at a meeting of the committee composed of former officers and councilors of the two societies, papers of incorporation were filed and the following officers were elected:

DeWitt G. Wilcox, M.D., President.

Arthur L. Brown, M.D., First Vice-President.

William D. McFee, M.D., Second Vice-President.

Arthur H. Ring, M.D., Secretary.

Elmer Otis, M.D., Treasurer.

Claude L. Payzant, M.D., Speaker of the Council.

Frederick W. O'Brien, M.D., John L. O'Toole, M.D., Councilors for three years.

John F. Valentine, M.D., Solon Abbott, M.D., Councilors for two years.

George J. Ott, M.D., George E. Percy, M.D., Councilors for one year.

It was agreed at the meeting that all members of both societies whose dues are paid and who have filled out the application blank shall be voted by the Council at once.

The first regular meeting of the new Society will be held at the Boston Square and Compass Club, on Wednesday evening, February 19, 1930, at 8 P. M. This meeting will be preceded by a dinner at the same place at 6:30 P. M.

All members of the Massachusetts Medical Society and the Massachusetts Homeopathic Medical Society interested in the subject are cordially invited.

ARTHUR H. RING, M.D., *Secretary.*

MASSACHUSETTS MEMORIAL HOSPITALS

STAFF MEETING

The regular meeting of the Staff of the Massachusetts Memorial Hospitals was held in the Evans Auditorium on January thirty-one at 8 P. M.

Dr. Solomon Fuller reported the case of a man 57 years of age, who was admitted to the hospital with a history of diabetes, and at the time was on a diabetic diet. He presented also a bulbar palsy—with swallowing disturbances, disturbances in enunciation, and a definite bilateral masseter palsy. During his stay in the hospital the sugar readily disappeared but the bulbar palsy continued. The case was shown as one illustrating possible chemical anatomical pathways between medulla and pancreas. The development of these palsies was gradual, extending over a period of about three weeks.

Dr. George R. Minot gave a most interesting talk on the intravenous administration of liver extract in the treatment of pernicious anemia and the value of iron in the treatment of anemia.

Dr. William D. Reid gave a brief talk on coronary thrombosis. This is usually a thrombosis forming on the basis of some pre-existing lesions of the intima of some part of the coronary vessels. Its prognosis is always uncertain but not necessarily unfavorable. The chief essential of treatment is

rest in bed until time has elapsed for the maximal repair of the infarcted area.

Dr. Allan Winter Rowe presented a brief analysis of a series of nearly three thousand cases from the standpoint of a possible endocrine influence on fertility. In addition to a long series of endocrine cases, including pituitary, thyroid, and ovarian conditions, the histories of one thousand patients presenting a variety of disease conditions unassociated with the ductless glands were analyzed. A control group of two hundred and fifty pregnant women was considered as was a smaller group derived from a series in which sterility was the presenting complaint. In spite of the inclusion of a number of uncontrollable extraneous factors the statistical study indicated that the presence of an endocrinopathy was associated with a definitely lowered fertility from that shown not only by the normal controls but also in the entire non-endocrine series.

MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH

The annual meeting of the Massachusetts Association of Boards of Health was held at the University Club in Boston on January 30. There was a good attendance with representatives from most of the sections of the State.

The officers elected were: President, Dr. Francis G. Curtis of Newton; Vice-Presidents, Dr. E. H. Trowbridge of Worcester and Dr. Joseph R. Glennon of New Bedford; Secretary, Mr. George T. Lennon of Haverhill; Treasurer, Mr. Jacob R. Sackett of Springfield. Executive Committee: Dr. Paul R. Withington, Milton, Dr. Charles F. Atwood, Arlington, Dr. Clarence L. Scamman, Newton, Dr. William T. Hopkins, Lynn, and Dr. M. Victor Safford, Boston.

An interesting feature of the meeting was a talk by Dr. Nels A. Nelson of the State Department of Health. Dr. Nelson explained the new rules and regulations on venereal diseases and Dr. R. C. Williams of the United States Public Health Service explained the inauguration of a Morbidity Reporting Area for Massachusetts. Dr. Safford of the Public Health Department discussed the different public health bills and a vote was passed that the Association go on record as opposed to the passage of House Bill No. 278. This bill would permit undertakers and embalmers to remove the bodies from one city to another for preparation for burial or cremation, provided such bodies were returned within thirty-six hours, unless a permit for permanent removal should be obtained. Dr. George B. Magrath, Medical Examiner of Suffolk District, explained that his attention had been called to the proposed law and that a hearing had been given on January 15 with no opposition and that the Legislative Committee on Public Health had reopened the hearing Monday, February 17, having been set as the date when opponents to the bill would be heard.

Resolutions on the death of Dr. Stephen L. Maloney were passed.

The retiring President Mr. John J. McGrath urged members of the Association to attend hearings before the Legislative Committees with reference to public health matters.

NEW ENGLAND HOSPITAL FOR WOMEN AND CHILDREN

The regular clinical conference of the New England Hospital for Women and Children will be held at the hospital, Dimock St., Roxbury, on Thursday, February 20, at 8 P. M. Some cases from the Habit Clinic will be reported, and also some congenital anomalies of recent occurrence at the hospital.

ALICE H. BIGELOW, M.D., *Secretary.*

BOSTON MEDICAL HISTORY CLUB

REGULAR MEETING, BOSTON MEDICAL LIBRARY, 8 FENWAY

Monday evening, February 17, at 8.15 o'clock.

The development of the clinical concept of arterial hypertension. Illustrated by the stereopticon. Dr. Soma Weiss.

Captain Robert Hinckley of Milton and his medicine chest. James F. Ballard.

JAMES F. BALLARD, *Secretary.*

NEW ENGLAND ROENTGEN RAY SOCIETY

The next meeting of the New England Roentgen Ray Society will be held at the Boston Medical Library on February 21, 1930 at 8:15 P. M.

The paper will be given by Dr. Frederic J. Cotton on "Osteitis and Borderline Tumors" and will be discussed by Dr. Channing C. Simmons, Boston, and Dr. T. D. Spies, Boston.

T. R. HEALY, M.D., *Secretary.*

THE SOUTH END NEIGHBORHOOD MEDICAL CLUB

The next regular meeting of the South End Neighborhood Medical Club will be held at the office of the Boston Tuberculosis Association, 554 Columbus avenue, Boston, on Tuesday, February 18, 1930, at 12 noon.

The speaker will be Dr. C. M. Whitney, Professor of Urology, Tufts College Medical School. His subject will be "A Review of the Modern Treatment of Acute Gonorrhea in the Male." All physicians are cordially welcome.

The usual luncheon will be served.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

1929-1930—Massachusetts Dietetic Association. Complete schedule appears on page 852, issue of October 24.

February 13—Massachusetts General Hospital. Complete notice appears on page 310, issue of February 6.

February 17—Boston Medical History Club. Complete notice appears above.

February 18—The South End Neighborhood Club. Detailed notice appears above.

February 19 and 26—Harvard Medical School. Lectures on "The Care of the Patient." Amphitheater C at 5 P. M. as follows: Wednesday, February 12—Dr. James D. Heard, Professor of Medicine, University of Pittsburgh, School of Medicine. Wednesday, February 19—Dr. Daniel Fiske Jones, Associate in Surgery, Harvard Medical School; Dr. George W. Gay Lecture on Medical Ethics. Wednesday, February 26—Dr. Samuel B. Woodward, Ex-President, Massachusetts Medical Society.

February 20—New England Hospital for Women and Children. Complete notice appears on page 355.

February 21—New England Roentgen Ray Society. Detailed notice appears on page 355.

March-October — International Medical Postgraduate Courses in Berlin. Complete notice appears on page 853, issue of October 24.

April 14-18—The New England Public Health Institute. Complete notice appears on page 55, issue of January 2.

May 2—Annual Meeting of the American Society of Stomatologists. Detailed notice appears on page 92, issue of January 9.

May 5-10—First International Congress on Mental Hygiene. Detailed notice appears on page 93, issue of January 9.

September 4-8—Fifth International Congress on Physiotherapy. Complete notice appears on page 906, issue of October 31.

October 27—The American Public Health Association Detailed notice appears on page 1271, issue of December 19.

DISTRICT MEDICAL SOCIETIES

Berkshire District Medical Society

February 13—Detailed notice for this meeting appears on page 251, issue of January 30.

Essex North District Medical Society

May 1—Thursday—Censors' meeting at Hotel Bartlett, 95 Main Street, Haverhill, (Telephone 3430) at 2 P. M. sharp. Candidates should present their diplomas to the Secretary one week in advance.

May 7—Wednesday—Annual Meeting, at Anna Jaques Hospital, Highland Avenue, Newburyport, Mass.

J. FORREST BURNHAM, M.D., Secretary.

Essex South District Medical Society

Wednesday, March 5, 1930—Lynn Hospital. Clinic 5 P. M. Dinner 7 P. M. Speaker: Dr. R. S. Titus, Boston. Subject: "Some Aspects of Caesarean Section," illustrated with Moving Pictures. General Discussion from the floor.

Wednesday, April 2, 1930—Hotel Hawthorne, Salem. Dinner at 7 P. M. Speaker: Dr. Timothy Leary, Boston. Subject: "Diagnostic and Therapeutic Pitfalls in Intracranial Pyogenic Infections."

Thursday, May 1, 1930—Censors meet for Examination of Candidates at Salem Hospital at 3:30 P. M.

Tuesday, May 13, 1930—Annual Meeting. The Tavern, Gloucester. Speaker: Dr. C. Macfie Campbell, Director of Boston Psychopathic Hospital. Subject to be announced later. Ladies invited. Dancing.

R. E. STONE, M.D., Secretary.

Franklin District Medical Society

The meetings of the Franklin District Medical Society will be held at the Weldon Hotel, Greenfield, Mass., on the second Tuesdays of March and May, at 11 A. M.

CHARLES MOLINE, M.D., Secretary.

Hampshire District Medical Society

April 9—This meeting will occur at 11 A. M. and will be held at the Dickinson Hospital, Northampton.

The Annual Meeting will be held in May.

LUTHER O. WHITMAN, M.D., Secretary.

Middlesex East District Medical Society

March 12—At Melrose.

May 13—At Unicorn Country Club, Stoneham.

ALLAN R. CUNNINGHAM, M.D., Secretary.

Middlesex South District Medical Society

April 16, 1930—Annual Meeting. Commander Hotel, Cambridge. Program to be announced.

May, 1930—Censors' meeting.

ALEXANDER A. LEVI, M.D., Secretary.

Norfolk District Medical Society

February 24, 1930—Roxbury Masonic Temple, 8:00. Dr Edwin H. Place has been invited to read a paper and has been given carte blanche in the selection of his subject.

March 24, 1930—Roxbury Masonic Temple. Dr. Burton E. Hamilton. Subject to be announced.

May 6, 1930—Annual Meeting. Program to be announced.

The Censors meet for the examination of candidates, May 1, 1930, in the Roxbury Masonic Temple, 171 Warren Street, Roxbury, at 4:00 P. M.

Applications must be in the hands of the Secretary at least one week previous to date of examination.

Owing to inability to engage the Roxbury Masonic Apartments on the last Tuesday of the month, such meetings as will be held in the Roxbury Temple will be held Monday evenings as per the dates above.

FRANK S. CRUICKSHANK, M.D., Secretary.

Plymouth District Medical Society

March 20, 1930—Moore Hospital, Brockton. Speakers to be announced later.

April 17, 1930—Annual Meeting, Commercial Club, Brockton, 7 P. M. Election officers. Annual oration, Dr. Frederick F. Weiner, "The Management of Prostatic Diseases," with moving pictures.

G. A. MOORE, M.D., Secretary.

BOOK REVIEWS

Études Sur Les Maladies Familiales Nerveuses et Dystrophiques. By O. CROUZON. Masson et Cie, Paris, 1929. 385 pages. Price, 55 francs.

The familial diseases of the nervous system are many, although most of them, in the past, have been only vaguely described. Dr. Crouzon has selected from the very large clinic at the Salpêtrière in Paris numerous illustrations of all the diseases of this type which have passed through that institution over a period of years. Brief case histories are given, along with numerous photographs of the patients and often the pathology. No book previously published covers the ground of these unusual familial diseases of the nervous system so well. The monograph is a great credit to the author and to the hospital from which the work emanated. The literature on the subject is fairly well reviewed, although most of the references are to French authors. The book, nevertheless, has great value, covering the field in detail. There is a short chapter at the end on familial dystrophies.

Pathfinders in Medicine, by VICTOR ROBINSON, M.D. New York: Medical Life Press, 1929. xvii + 810 pages. Price, $10.00.

The first edition of this book appeared in 1912 and contained the lives of fifteen physicians. It was a book of slightly over 300 pages. In the present edition Dr. Robinson has added fifteen more biographies and the book is expanded to one of over 800 pages, making it somewhat bulky to handle. Most of the material has already appeared in "Medical Life" and those familiar with that publication will not need an introduction to its very active editor. Dr. Robinson has gone into great detail and must have searched far and wide for anecdotes in regard to the great men of medicine. The illustrations of his book are a unique feature. In the present edition there are one hundred and fifty, many of them not to be found in other publications. The book is written in a semi-popular style, but gives evidence throughout of extensive research into the original sources. It is, perhaps, too full of anecdotes, and this is the one criticism that might be levelled against it. In the mass of detail one fails to get a complete picture of any individual. There is a lack of smoothness in writing which hampers the author somewhat in presenting a pleasing paragraph. On the whole, the volume will be valuable as a reference book, although many of the details will have to be checked up again from their original sources.